The Mining Journal

AND ATMOSPHERIC RAILWAY GAZETTE,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 553.---Vol. XVI.] LONDON: SATURDAY, MARCH 28, 1846. [Price 6d.

ELEVENTH PERIODICAL SALE FOR SHARES.

GEO. CARNE respectfully announces the next PERIODICAL SALE FOR SHARES and SECURITIES, will be held at the Auction Mart, Bedford-street, Plymouth, on MONDAY, the 6th April, at Seven o'clock in the evening precisely. Orders have been already received to submit the following

VALUABLE AND IMPORTANT LOTS:

West Caradons	Wheal Franco
Fowey Consols	Hobb's Hill
Dolcoath	West Tolgus
Wheal Norris	Wheal Benny
St. Cleer	North Wheal Robert
North United	Sourton Consols
South Harvannah	West Wheal Jewel
West Wheal Seton	North Wheal Fortescue
West Fowey Consols	Caradon Consols
South Basset	Caradon Vale
West ditto	South Wheal Rose
Wheal Gill	
Caradon Wheal Hooper	Eastern Counties
Mendip Hills	South Devon
East Crowndale	Bristol and Exeter
Devon and Courtenay Consols	Great Western

And THREE REVERSIONARY INTERESTS, for different sums—particulars of which will be given in the catalogues, which will be ready for delivery on Thursday, April 2.

MINE MATERIALS.—TO BE SOLD, BY AUCTION, at WOOLSON'S COLLIERY, near SAUNDERSFOOT, Pembrokeshire, on the 22d day of April next, ONE PUMPING-ENGINE, 30-inch cylinder, 6-feet stroke, with two boilers, 24 feet long and 5½ diameter; about 40 fms. of pumps, 12-inch bore, including two working pieces of same size, lined with copper and brass.

ONE PUMPING-ENGINE, 18-inch cylinder, 4-feet stroke, with one boiler; about 30 fms. of 8-inch pumps, with brass working-piece and pole. This engine is fitted with a fly-wheel, about 5 tons weight, and spur gearing, and can be adapted for pumping or winding.

ONE WINDING-ENGINE, 18-inch cylinder, 3½-feet stroke, with fly-wheel and drum, complete.

An UNDERGROUND PUMPING MACHINE, with 3-inch pipes complete; and a large assortment of coal waggons, tram plates, bar-iron, pit timber, elm balks, chains, both round and flat, wire ropes, windlass beams, horse gin, spur-wheels, 3-inch pipes, together with a large assortment of colliery stores.

The colliery is very conveniently situated for shipping, being within a few yards of the Saundersfoot Railway, and about a mile from the harbour of Saundersfoot, where vessels can load at any time. Saundersfoot is about four miles from Tenby, to which place steam-boats from Bristol run twice a-week.

The whole may be viewed at any time.

Apply to Thos. Stokes and Co., Hean Castle Collieries, near Saundersfoot, Pembrokeshire.

STANNARIES of CORNWALL.—In the Vice-Warden's Court.
TAYLOR *v.* BLAKE, AND HARWOOD AND ANOTHER.

WHEREAS, the Vice-Warden did, on the third day of March instant, by his Order and Decree in the above-named cause, Order and Decree that A SALE be made of the parts, or shares, and interest of the said respective Defendants, Blake and Harwood, of, and in, WHEAL GILL MINE, in the Parishes of Saint Ive and Saint Cleer, within the said Stannaries, under the direction of the Registrar of this Court; and that the proceeds of such Sale should be applied by the said Registrar in the manner directed by the Decree in the above-mentioned cause.

Notice is hereby given, that, pursuant to the said Decree, a PUBLIC AUCTION will be holden at the Red Lion Inn, in the Borough of Liskeard, on SATURDAY, the 4th day of April next, at Three o'clock in the afternoon, for selling, in such lots as shall be then and there determined on, SIX (256ths) PARTS, or SHARES, of, and in, the said Mine, and the like parts, or shares, of, and in, the ores, halvans, machinery, and materials, and other effects, upon, and belonging to, the said Mine.

For further information, application may be made to Mr. Boase, solicitor, Liskeard; or to Mr. Chilcott, solicitor, Truro.—Dated the 17th day of March, 1846.

IBSTOCK, LEICESTERSHIRE.

VALUABLE COLLIERY AND FREEHOLD ESTATE,— TO BE SOLD, BY AUCTION, by B. PAYNE (subject to such conditions of sale as will be then produced), on Thursday, the 2d day of April, 1846, at the Queen's Head Hotel, adjoining the railway station, Birmingham, at Two o'clock, all that valuable COLLIERY, in full working, called the IBSTOCK COLLIERY, including an excellent PUMPING ENGINE, with cylinder of 64 inches diameter, three boilers, and 156 yards of pump-trees, clack-doors, rods, and ironwork, complete. Also, a WINDING ENGINE, cylinder of 24 inches diameter, 6-feet stroke, pumping and winding apparatus, and two boilers. Also, a small WINDING ENGINE, of 18 inches cylinder, 5-ft. 8-in. stroke—not in work; together with two well-conducted shafts and flat-ropes, capstan and rope, with other machinery on pit banks, weighing machine, railways, and other effects connected therewith. And also, NINETY-EIGHT ACRES of excellent arable, meadow, and pasture LAND, in fine condition, with a FARM-HOUSE in the centre; barns, stables, sheds, and all the customary buildings, in complete repair—situate at Ibstock aforesaid—contiguous to, and now occupied in conjunction with, the above colliery.

The colliery has been partially opened about 20 years, but has only been in full work about 10 years.

The estate contains several seams, or beds, of excellent coal, the principal of which, so far as has yet been ascertained, are as follows:—The five-feet, or top seam, extending under 58 acres, of which about 32 acres have been worked out; and the eight-feet, or bottom seam, under 116 acres, of which about 23 acres have been exhausted.

There is an abundance of fire clay, which may be turned to great advantage; and a good supply of brick clay, with a brick-yard, kiln, large shed, &c., for its manufacture—now in full work.

A branch railway, of about 1½ mile in length, belongs to the colliery estate, and connects the same with the Leicester and Swannington Railway at a distance of about 11 miles from Leicester—thus affording, in addition to the home trade, a ready market, with a priority in distance over other collieries, for disposing of the excellent coal at a moderate rate, but remunerating price.

There are various cottages and other buildings and conveniences on the estate, not only for the occupation of the farm, but also for colliery purposes, including new offices and store-room, capital blacksmiths' and carpenters' shops.

The estate is tithe-free, with the exception of about 40 acres, which pay a modus of £1 7s. 6d. a year. The neighbourhood of Ibstock is thickly populated and wealthy, and the extensions of the Midland railways, now in contemplation, will afford a new and very large market for the coal towards Rugby and Northampton, and other places, in addition to the present trade in the neighbourhood, and to the town of Leicester.

The coal is particularly adapted for the working of steam-engines, as it possesses great powers of generating steam.

To view the colliery and estate, apply on the premises; and for further particulars, application must be made to Mr. Green, solicitor, Ashby-de-la-Zouch; or to the auctioneer, Mr. B. Payne, Market-street, Leicester, at whose offices plans of the estate and colliery workings may be seen; and to Messrs. Austen and Hobson, solicitors, 4, Raymond-buildings, Gray's Inn, London.

The London and Manchester Direct Railway is projected to pass within about 200 yards of the colliery.

Also, TO BE SOLD, at the same time and place, a FIFTY-INCH CYLINDER, recently bored, with cylinder top and bottom, piston and piston-rod, two cross-bars, and iron plate, 4 ft. 10 in. by 4 ft. 11 in., 1¼-inch thick; 46 feet steam pipe, 12-inch bore; match boxes, clack door-piece, nozzle-pipe, &c.; 78 feet pump trees, 15-inch bore; 108 feet ditto, 8-inch bore, with windbore, working barrel, &c. Also, a number of RAILWAY COAL WAGGONS, together with the stock of timber, iron, colliery rails, mining utensils, and other effects, belonging to the Ibstock Coal Company. Also, the company's tenant-right to a spacious WHARF, at Leicester, capable of conducting a very large trade in coal, lime, timber, and other articles.—Ashby-de-la-Zouch, March 2, 1846.

TO BE SOLD, TWO HIGH-PRESSURE STEAM-ENGINES, entirely new—one 40-horse, the other 25-horse power—at 35 lbs. pressure. The engines are very strong, having been built for driving a rolling-mill and metal helve in an iron work, and are not now required.

Application to be made to E. H. Plumptre, Esq., Lamb-buildings, Temple, London; or, by letter, addressed "A. M.," Box No. 25, Sheffield.

WANTED, FOR AN IRONWORK IN GERMANY, FOUR PUDDLERS, TWO REHEATERS, ONE BOILER PLATE ROLLER, and ONE HAMMERMAN.

Good wages will be given to steady workmen.—Application to be made, by letter, to the directors of the Nisterdale Iron Company, 10, Old Jewry Chambers, London.

TO BE LET, the TEES IRON-WORKS, situate on the border of the RIVER TEES, and contiguous to the Stockton and Darlington Railway, in the flourishing commercial and coal-shipping port of Middlesbrough, in the North Riding of Yorkshire. These commodious premises contain turning and fitting-up shops, with their valuable machinery; a spacious IRON FOUNDRY, blacksmiths' shops, boiler, smiths' shops, with their requisites; engine and engine-house, offices, and a spacious yard. The works are in full operation, and are well adapted for ENGINE-BUILDING and FOUNDRY WORK; they border on the River Tees, and a branch from the Stockton and Darlington Railway joins the works; they are equally well situated for the London market, the local trade, that of the interior, and for export; they are at present in the occupation of the owner, who is retiring from business.—For information apply on the premises, to the proprietor, Mr. Henry Sidney.

GRATIS.—A LIST of PATENTS and REGISTRATIONS for the MONTH of FEBRUARY, may be had (gratis) on application at the PATENT OFFICE, 89, CHANCERY-LANE, or will be sent free, by post, on receipt of two stamps, together with a Prospectus, containing charges and necessary information for PATENTS and REGISTRATIONS.—Further particulars may be had by applying to Messrs. Harlow and Le Capelain, the Patent Office, 89, Chancery-lane.

LONDON ASSURANCE CORPORATION.
ESTABLISHED BY ROYAL CHARTER, A.D. 1720.

The governors and directors of the London Assurance Corporation have greatly enlarged their system of life assurance, and invite public attention to their new prospectus. The following rates will be found to bear comparison with those of any firmly-established and undoubtedly responsible office:—

ANNUAL PREMIUMS FOR THE ASSURANCE OF £100.

Age.	*PARTICIPATING.*	*NON-PARTICIPATING.*
16	£1 16 9	£1 12 7
20	2 0 2	1 15 11
30	2 10 8	2 5 11
40	3 5 1	3 0 0
50	4 10 7	4 5 7
60	6 12 5	6 5 11
65	8 4 11	7 16 9

The rates for all other ages, and a detailed prospectus, containing their very liberal conditions, and the rates under their nine other tables, may be had on application at their

OFFICES, 7, ROYAL EXCHANGE, CORNHILL—10, REGENT-STREET;

and of any of the corporation agents in Great Britain and Ireland.

FIRE ASSURANCES are effected at the LOWEST RATES, and MARINE ASSURANCES at the CURRENT PREMIUMS of the day. JOHN LAURENCE, Sec.

GREAT BRITAIN MUTUAL LIFE ASSURANCE SOCIETY, 14, WATERLOO-PLACE, LONDON.

DIRECTORS.

THE CHISHOLM, Chairman | WM. MORLEY, Esq., Deputy-Chairman

HALF CREDIT RATES OF PREMIUM.

The attention of Assurers is particularly directed to the Half Credit Rates of Premium, by which means assurances may be effected, and loans for short periods secured with the east possible present outlay, and at a less premium than for short terms only, and with the option of paying up the arrears and interest—thus becoming entitled to participate in the *whole of the profit of the institution.*

Extract from the Half Credit Rates of Premium.

Age 20.	Age 30.	Age 40.	Age 50.	Age 60
£0 17 0	£1 1 1	£1 8 2	£2 1 0	£3 4 2

Thus £1000 may be assured at the age of 30 by the annual payment of £10 10s. 10d. for the first five years.

The whole of the profits divided annually among the members, after payment of five annual premiums.

An ample guaranteed capital, in addition to the fund continually accumulating from premiums, *fully sufficient* to afford complete security to the policy-holders.

Members assured to the extent of £1000 entitled (after payment of five annual premiums) to attend and vote at all general meetings, which will have the superintendence and control of the funds and affairs of the society.

Full particulars are detailed in the prospectus, which, with every requisite information, may be obtained by application to A. R. IRVINE, Managing Director.

STEAM TO INDIA VIA EGYPT, MALTA, ITALY, ALEXANDRIA, AND THE PENINSULAR PORTS.

PASSAGE TO BOMBAY, MADRAS, AND CALCUTTA.

The Peninsular and Oriental Steam Navigation Company BOOK PASSENGERS for CEYLON, MADRAS, and CALCUTTA direct, by steamers leaving Southampton on the 20th, and for Alexandria, *en route* to Bombay, on the 1st of every month.

A steamer from Southampton leaves the 1st and 20th of every month for Malta, whence are steamers to Naples, Genoa, Civeta Vecchia, three times a month.

STEAM TO CORUNNA, OPORTO, VIGO, LISBON, CADIZ, AND GIBRALTAR.

A steamer leaves Southampton on the 7th, 17th, and 27th of every month.

Apply at the Peninsular and Oriental Steam Navigation Company's offices, 51, St. Mary Axe, London, where only passages can be secured throughout.

TO ENGINEERS, RAILWAY CONTRACTORS, MINING AGENTS, IRONMASTERS, AND OTHERS REQUIRING FINE GREASE for MACHINERY and AXLES of every description.---JOSEPH PERCIVAL'S IMPROVED ANTI-FRICTION GREASE is---after trials on machinery and axles of every kind where constant friction is kept up---admitted to be the most useful, economical, and best preparation of the kind ever offered to the public.

References to scientific and practical men can be given, and testimonials shown of its great excellence.---Samples forwarded on application at the manufactory, Green-street, Wellington-street, Blackfriars-road, London.

PAYNE'S PATENT PROCESS FOR THE PRESERVATION AND IMPROVEMENT OF TIMBER, &c.—PAYNE and LODER beg to invite the attention of Engineers, Railway Companies, Architects, and others, to the ABOVE PROCESS, and to state that they are prepared to ERECT the necessary APPARATUS in any part of the United Kingdom, where the quantity is sufficiently large to cover the outlay of its removal.—Further particulars can be obtained at WHITEHALL WHARF, CANNON-ROW, WESTMINSTER, or at their other stations—

FLEETWOOD-ON-WYRE, LANCASHIRE, UNION WHARF, SOUTHAMPTON, and WISBEACH, CAMBRIDGESHIRE, GUILDFORD, SURREY.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

SMART'S ELLIPTICAL CONVEX METALLIC PADDLE FLOATS, FOR PROPELLING STEAM-SHIPS.—The very great superiority of this invention over the common float, in *all points*, having been fully proved by its use on various steamers of from 90 to upwards of 200-horse power—and applications being made for licensing several iron steamers, from 70 to 300-horse power, the patentee confidently recommends it to the Government and the public generally.

Its superiority consists, in beauty of appearance, stability, durability, its property of greatly reducing vibration and undulation, inexpensiveness, powerful agency in checking a ship in chance of collision—and what is of the greatest consequence, giving an immense increase of speed. All these must have a powerful influence, not only on steam proprietors, but more especially on the minds of the steam-travelling public.

These Floats can be easily applied to any wheel.

Applications for license (for which a fee of 10s. per horse-power is charged) to be made to the patentee, Mr. Robert Smart, 5, Grenville-place, Hotwells, Bristol, or his agents.

SEYSSEL ASPHALTE COMPANY—CLARIDGE'S PATENT.—ESTABLISHED MARCH, 1838,
FOR WORKING THE MINERAL ASPHALTE ROCK OF PYRIMONT SEYSSEL,
A Bituminous Rock, situate on the Eastern side of the Jura.
PRINCIPAL DEPOTS:
ROUEN, MARSEILLES, AND STANGATE,
Surrey Side of Westminster-bridge, London.

The ASPHALTE OF SEYSSEL has been EXTENSIVELY USED, since March, 1838, for the following useful purposes:—

FOOT PAVEMENTS (public and other)	MALT-HOUSE FLOORS
KITCHEN FLOORS	PIGGERIES, &c.
BASEMENTS—where it is essential to keep damps from rising	COVERING OF RAILROAD and OTHER ARCHES
GARDEN WALKS and TERRACES	The only effectual mode to prevent the percolation of water, which also renders it very appropriate for the
CARRIAGE DRIVES	LINING OF TANKS, FISH PONDS,
COACH-HOUSES and STABLING	DRAINS, &c. &c.
DOG KENNELS	
BARN FLOORS	
TUN ROOM FLOORS	

Note.—The Seyssel Asphalte Company are prepared to enter into special contracts for the execution of railway work, and other public works of magnitude.

I. FARRELL, Secretary, Seyssel Asphalte Company, Stangate, London.

HALEY'S PATENT LIFTING JACK.
MANUFACTURED SOLELY BY
W. & J. GALLOWAY, ENGINEERS,
KNOT MILL IRON-WORKS, MANCHESTER.

The attention of parties who employ LIFTING JACKS, is respectfully requested to the superiority of the above over those hitherto in use. It will lift either at the top or below—having a claw, the same as the rack jack. Its parts are made in the most accurate manner—*each working piece being engine-cut.* Notwithstanding its superiority, in point of workmanship, and combining utility, safety, durability, and neatness, the cost is not more than that of the rack jack, of rude manufacture.

Amongst the advantages which it possesses, the following may be enumerated:—

1. It is about *half the weight* of the ordinary rack jack of equal power.

*** This is most important, as the ponderous nature of the rack jack is one of the main objections to it, requiring *two*, and often *three*, men to carry one of moderate power; whereas, one of the improved jacks (capable of lifting five tons), can be borne with ease by *one* man.

2. The handle (working similar to the rack jack) *may be let go with the lift on*; and although it has neither ratchet wheels or any other mode of securing it, it will not run back, but remains stationary, and quite safe.

3. Its parts are few, and simple (made entirely of wrought iron, and case-hardened).

PRICES.

No. 2 size	to lift 2 tons	£6	0 0
„ 3 „	„ 4 „	7	0 0
„ 4 „	„ 8 „	9	10 0
„ 5 „	„ 12 „	12	0 0
„ 6 „	„ 16 „	15	0 0

STEAM COAL—WITHOUT SMOKE, as per experiments made at her Majesty's Dockyard, Woolwich.

CAMERON'S COALBROOK STEAM COAL, AND SWANSEA AND LOUGHOR RAILWAY COMPANY.—(Completely Registered and Incorporated.)

OFFICES—2, MOORGATE-STREET, LONDON.

The directors are now prepared to supply steam ship companies, manufacturers, shippers, and others, with the company's steam coal, either at the company's wharf at Swansea, or in London. A statement, showing by comparative trial the superiority of this coal for steam purposes over every other, and a scale of prices, may be had on application at the company's offices here, or at their wharf at Swansea.—March 18, 1846.

BELGIAN EASTERN JUNCTION RAILWAY.
TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I am instructed to give Notice, that a COPY of the REPORT, submitted by the directors to the meeting of this company, held at the London Tavern, on the 25th inst., will be PRINTED without delay, and sent to each of the shareholders.

I am, Sir, your obedient servant,

35, Essex-street, Strand, March 25, 1846. W. G. BICKNELL, Secretary.

CARN BREA MINES.—At a General Yearly Meeting of adventurers in the Carn Brea Mines, held in the company's offices, No. 35, Broad-street-buildings, London, on Thursday, 19th March, 1846,

LOUIS VIGURS, Esq., in the chair,

The report of the directors, together with a statement of the accounts for the year ending 31st December, 1845, and also a report from Mr. Joseph Lyle, of the present state and prospects of the mine, were read.

The following resolutions were then unanimously agreed to:—

1. That the report now presented be received, and its recommendations adopted, and that it be printed and circulated amongst the shareholders, together with the accompanying account, and Mr. Joseph Lyle's report.
2. That a further sum of £100 per annum be added to the sum now paid to the directors, as remuneration for their services.
3. That the thanks of the meeting be given to the chairman, for his very proper conduct in the chair.
4. That the special thanks of this meeting be given to Mr. Joseph Lyle, for his able management of these mines.

CAUTION.

NANT-Y-BRIAN AND TRAWSNANT MINES, in the parishes of Llandewy, Abergwissen, and Llanwityd.—No contract for working these mines, nor any debts incurred in and about the same, will be recognised, unless first authorised by the board of directors of the Nant-y-brian and Trawsnant Silver-Lead Mining Company. All persons are, therefore, CAUTIONED first to apply at the company's offices, before undertaking any work, supplying any goods, or giving any credit, in respect of the said mines.—Dated this 13th day of March, 1846.

W. W. TERRINGTON, Secretary to the said Company.

5, Great Winchester-street, London.

CAUTION.

NANT-Y-BRIAN AND TRAWSNANT MINES, in the parishes of Llandewy, Abergwissen, and Llanwityd.—I hereby give Notice, that it is intended (as soon as it is possible so to do) to apply to the Court of Chancery for such relief as the Nant-y-brian and Trawsnant Silver-Lead Mining Company may be entitled to, respecting these mines; and in the meantime, and until the Judgment, or Decree, of the said court, can be obtained, all persons are hereby CAUTIONED against trespassing upon, or in any way interfering with, the property or effects belonging to the company, or to the mines.—Dated this 13th day of March, 1846.

W. W. TERRINGTON, Secretary to the said Company.

5, Great Winchester-street, London.

NISTER DALE IRON COMPANY.—PREFERENCE SHARES.—This company has now commenced its operations, and it is proposed to declare a dividend on the 31st December next. A limited number of shares, of £25 each, remain to be disposed of; and the directors are empowered to guarantee the holders of such shares a DIVIDEND, at the rate of £5 per cent. per annum, upon the amount of capital paid up on such shares, for the term of three years next after they are subscribed for.—Applications to be addressed to the directors, at the office of the company, 10, Old Jewry Chambers, London, where the form of application, and all information respecting the company, may be obtained.

NOTICE TO THE PROPRIETORS AND SHARE-HOLDERS OF MINES, SMELTING-WORKS, &c.

Messrs. MITCHELL and FIELD beg to inform the PUBLIC, that they have REMOVED from No. 5 A to No. 23, HAWLEY-ROAD, KENTISH TOWN, where they have erected a spacious LABORATORY, fitted expressly for the performance of all OPERATIONS CONNECTED WITH MINING.—Practical instruction to gentlemen in Assaying, Mineral Analysis, and Manufacturing Chemistry in general.

Assays and Analyses conducted as usual.

All communications to be addressed to Messrs. Mitchell and Field, assayers, No. 23, Hawley-road, Kentish Town.

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.---This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c.:—"I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall.

STEAM-ENGINES.—From 8 to 20-horse power ENGINES ALWAYS IN STOCK.

Apply to Mr. CAPPER, ENGINE-MAKER and FOUNDER, BIRMINGHAM.

Price.....£14 *per horse-power.*

A VIEW OF THE COAL TRADE OF GREAT BRITAIN AND BELGIUM is now ON SALE, at Messrs. Simpkin, Marshall, and Co.'s, booksellers, London—price 7s.

By MATTHIAS DUNN, Mining Engineer, Newcastle-on-Tyne.

UNIVERSAL GAS LIGHT COMPANY.—CONTRACTS TAKEN for LIGHTING UP, with a SUPERIOR GAS, and at a REDUCED RATE—towns, villages, lighthouses, dockyards, hospitals, theatres, public offices, manufactories, printing-offices, prisons, barracks, railway stations, asylums, schools, and other large buildings, where the ordinary gas is not accessable.—Letters to be addressed to Mr. William Nicholson, secretary, 159, Drury-lane.

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES, AND CLOCKS.---E. J. DENT, 82, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.

DENT'S PATENT DIPLIEDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

LITHOGRAPHY.—Messrs. MACLURE, MACDONALD, and MACGREGOR, GENERAL LITHOGRAPHERS, beg to call attention to a peculiar feature in their system of conducting business—namely, their having a large and permanent staff of assistants, in all the varied departments of the art, *on the premises*; which arrangement, they submit, gives a force and effect to immediate production unattainable by other means, and which is obviously of great advantage to those who may require their services, independent altogether of the excellency of their work.

London Establishment—Saville House, 6, Leicester-square.

Liverpool Establishment—18, Fenwick-street.

Glasgow Establishment—57, Buchanan-street.

Vacancies for two pupils—one in the writing, the other in the artistical department.

UNDER THE PATRONAGE OF ROYALTY AND THE AUTHORITY OF THE FACULTY.

KEATING'S COUGH LOZENGES.—A remedy for all dis-orders of the pulmonary organs—in difficulty of breathing—in redundancy of phlegm—in incipient consumption (of which cough is the most positive indication) they are of unerring efficacy. In asthma, and in winter cough, they have been seldom known to fail.—KEATING'S COUGH LOZENGES are free from every deleterious ingredient; they may, therefore, be taken at all times, by the most delicate female and by the youngest child; while the public speaker and the professional singer will find them invaluable in allaying the hoarseness and irritation incidental in vocal execution, and consequently a powerful auxiliary in the production of melodious enunciation.

Prepared and sold in boxes, 1s. 1½d., and tins 2s. 9d., 4s. 6d., and 10s. 6d. each, by Thomas Keating, chemist, &c. No. 79, St. Paul's Churchyard, London.

Sold by Sanger, 150, and Dietrichsen and Hannay, 63, Oxford-street; Blake, Sandford, and Blake, 47, Piccadilly.—Sold wholesale by Barclay and Sons, 95, Farringdon-street; Edwards, 67, and Newberry, 45, St. Paul's Churchyard; Sutton and Co., Bow Churchyard; and retail by all druggists and patent medicine vendors in the kingdom.

RECENT TESTIMONIAL. Dover, January 26, 1845.

SIR,—I have great pleasure in informing you, that the 2s. 9d. box of KEATING'S COUGH LOZENGES, had at your house about three weeks since, has relieved Mrs. Hiller of a bad cough, to which she has been subject many years, especially in the winter season. A considerable portion of the lozenges are on hand, nor has she, for the last fortnight, had any occasion to use them.—Your's respectfully,

Mr. S. Martin, Dover. T. L. HILLER, Esq.

ON THE CHEMISTRY OF THE STEAM-ENGINE.

BY T. CRADDOCK, ESQ., BIRMINGHAM.

LECTURE III.—On apportioning the generation of steam to the wants of the engine—On the priming of boilers, especially tubular boilers—On boiler explosions—On the available motive-power of a given weight of steam commencing its action at various pressures—On atmospheric air as a motive-power—On the best mode of using steam expansively.

LECTURE III.—*Continued.*

We hear much just now on the atmosphere, as a motive power, to supersede steam. I must confess my inability to see the adaptation it possesses for such a purpose, as it is obvious that steam, in its gaseous state, partakes of all the mechanical properties of the atmosphere, whilst it possesses one very essential recommendation the atmosphere hitherto hath not been able to furnish us with—viz., that steam is condensable into a comparatively insignificant bulk in the shape of water. This is of very great moment for the returning of it to the boiler, not to speak here of the great recommendation of the vacuum, which it thus enables us to command. If it were at all desirable to use gases expanded by heat, in the manner proposed to use the atmosphere, I can see no preference it hath over steam as a gas or air; whereas steam, as we have aforesaid, is condensable into a very small volume, when exhausted of its motive power. This cannot be the case with any of the unliquifiable airs or gases. But I cannot bring myself to think, that the raising of the temperature of the steam out of contact with the water, is at all a desirable mode of applying steam; and if not for steam, I feel assured there are no recommendations in the heat expanding principle, when applied to atmospheric air, for the production of a motive power, which will possess any superiority over the steam-engine. Without entering into any very long process of reasoning to prove this position, it seems sufficient for my purpose to refer to the very high temperature necessary to give the gases to obtain any great enlargement of their volume in given weights—for to obtain 15 lbs. on the inch effective pressure will require their temperature to be raised from 50 degrees to nearly 600 degrees. This is a temperature which is not at all desirable in the working parts of the engine; whilst a temperature of only 400 degrees would give us steam in contact with the water equal to 240 lbs. on the inch; or such pressures as I am desirous of introducing would be obtained at a temperature not exceeding 340 degrees, or very little more than half that we see requisite with atmospheric air, to produce available power of only 15lbs. per square inch. If we now approach the question of economy, with the view of obtaining a practical comparison between the mode of using steam expansively as I propose, and this atmospheric substitute, and for the present take for granted, what I shall hereafter prove, that 28 cubic feet of water will produce 95-horse power, generated under a pressure of 115 lbs. to the square inch, atmospheric pressure included, and being used expansively, with a resisting pressure in the condenser of only 1½ lb. per square inch, or a vacuum equal to 27 in. of mercury, are equal to the production of 95-horse power.

Before proceeding farther, it is necessary to note the specific gravities of air and water; the 28 cubic feet of water are, by weight, 1736 lbs., whereas the same weight of atmospheric air would be 22,960 cubic feet, at 60 degrees temperature—barometer standing at 30; but we find that the low pressure cylinder, to give off 95-horse power—which is that I am about to make the comparison with—would, with air having an uniform effective pressure of 15 lbs. only, throughout the stroke, require to be 34¾ in. in diameter—the volume of atmospheric air requisite to supply it per hour would be 80,219 cubic feet, or by weight 6096 lbs.—the specific heat of equal weights of air being to that of water as 1 to 3·386, so that the absolute amount of heat required for the conversion of the 28 cubic feet of water into steam, and that for the doubling of the volume of 80,219 cubic feet, or 6096 lbs. of atmospheric air, is very nearly the same—on these grounds there is no advantage either way. But, when we come to consider the two substances in their adaptability for motive-power, we find that the water is but 28 cubic feet, to be forced back into the boiler, or multiplying the volume by the resistance opposing its introduction into the boiler, we have 3220 lbs. as the obstructing force to its reintroduction into the steam-boiler; whereas, to force the volume of air equal to the production of the same power again into the air-furnace, in which, as we have supposed, there would be a resistance of 15 lbs. on the inch—this would give 1,203,285 lbs., or a resisting force to the reintroduction of the air equal to 373 times that of the water into the steam-boiler. This objection, together with the much less absorption of the heat produced in the furnace, owing to its being at nearly double the temperature of that of steam at 115 lbs. per inch—add to this the evil effects arising from this high temperature on the working parts of the engine—it then needs no hesitation to perceive how very much inferior the atmospheric motive-power must ever be when compared with steam. In our former remarks, we have not made any allowance for the much greater loss of heat from radiation and conduction, which is doubly increased both in temperature and extent of surface.

Various have been the opinions entertained as to the best mode of using steam expansively, and there are not a few at the present day who question whether from this principle there can be any great advantage realised. Perhaps the greatest degree of scepticism attaching to any one proposition I have put before the public, is that in reference to the advantages I allege will arise from thus employing steam at 115 lbs., and using it expansively in conjunction with a vacuum. This is the more remarkable after the confirmation adduced from the experience of the Cornish engineers. Whether these doubts are assumed ones, or a firm belief in the minds of the objectors, I, of course, have no means of knowing, but I will be bold to say, that if they are real convictions, they are founded upon a very erroneous conception of one of the most important principles entering into the steam engine; and such as are inexcusable, as I think, with practical men; for we can readily obtain the most positive evidence, equal to that we have of the sun shining; that if we in one experiment employ steam at 115 lbs. per square inch, in, we will suppose, a 10-inch cylinder, two feet stroke, and the pistons travelling at 220 feet per minute, with, as would be found, the quantity of steam requisite, allowing after Pambour's precedent, 1·20 for clearance to be 1736 lbs. of steam per hour; taking another cylinder of 24 inches diameter, the same stroke and speed, and on the exhaust side of the piston, of which we will suppose a vacuum equal to 27 inches of mercury; now, on deducting 5 lbs. above the atmospheric pressure from the 10-inch piston, we have then 95 lbs. per square inch effective pressure; this multiplied into the area of the piston, the product again into its velocity, we find a gross effective pressure equal to 1,640,540 lbs., lifted one foot high per minute, or very nearly 50-horse power; on this steam passing into the 24-inch cylinder, the indicator makes known to us that an impelling force is therein produced, which, when multiplied into the area of the piston, that again by 220 feet per minute, will give a gross power, derivable from the same steam in this cylinder, equal to 1,491,600 lbs. lifted one foot high per minute, or 45-horse power. Now this is no theoretical or hypothetical view, but such a one that is any day demonstrable. It is clear, in this case, that, in reference to the first or high pressure cylinder, there can be nothing doubtful, as it is merely a simple high pressure engine. In reference to the low pressure cylinder, the indicator reveals the true state of the questions beyond a doubt to any one who at all understands its action. Taking this, which to me is as conclusive evidence as we can desire (though, in saying this, I would not shrink from any kind of experimental test which may be brought desirable), we find the weights of steam or of coals per hour for the production of the same amount of mechanical effect, when used under the following conditions to stand thus for the production of 95-horse power gross:—

With steam at 115 lbs. per square inch, it requires 1736 lbs. of steam per hour, or 217 lbs. of coals; without expansion, at 18 lbs. per square inch, requires 4030 lbs. of steam per hour, or 504 lbs. of coals; without condensation or expansion, at 40 lbs. per square inch, it requires 5270 lbs. of steam per hour, or 690 lbs. of coals. The atmosphere is included in all the above pressures.

In the foregoing calculations, 8 lbs. of coals are taken as that equal to convert 62 lbs. of water into steam. Having given this practical exemplification of the value and great economy which must arise by commencing with the use of steam in the engine at 115 lbs. on the inch, having on the exhaust side the large or low pressure piston, a vacuum such as before described, I would recommend to those who are not yet able to overcome their scruples, in reference to the greater amount of mechanical effect contained in high-pressure steam, to ascertain for themselves whether it be possible to fill a vessel with air to a pressure of 100 lbs. on the inch, without the absorption of a considerable amount of power—which I anticipate, will give them, if the vessel be a large one, and they effect it by their own manual labour, such evidence as will leave no doubt that thus to compress air required some exertion on their part; and then, if they will believe us, that steam participates of the same mechanical properties as atmospheric air—if they believe that action and reaction are equal in material substances, and that the air thus compressed, minus friction and loss of temperature, is equal to the reproduction of the same force as that required for its expansion—if they will admit this, then I have no objection to take such an experiment as a test of the advantages of using steam *high-pressure, expansively*.

The only difference between a vessel thus filled with atmospheric air, and the mode I propose with steam is, that I would compress the steam by the simple operation of heat. We have thus shown what is attainable by the use of high pressure steam applied expansively. We come now to the best mode of doing this; here two considerations present themselves—first, the obtaining, in the most efficient manner, the greatest amount of power from a given quantity of steam; secondly, the uniformity with which this power is transmitted. In reference to the obtaining the greatest amount of power, if we were to be guided by theory, or the expansive curve of the indicator, we must certainly come to the conclusion, that to expand it in one cylinder is best; but neither theory nor the indicator inform us as to whether a portion of the steam, on its first coming in contact with the bottom of the cylinder and bottom of the piston, and, on the other stroke, top of the cylinder and top of the piston, is not condensed when it should be steam, and passing off to the condenser as steam when we require it in the state of water. That this drawback does exist to a very considerable extent when we use hot or high pressure steam, such as I before have been speaking of, is to my mind, from the experiment I have made, much too probable, if not certain; nor does it seem inconsistent with the soundest reasoning on the subject, when we come to look narrowly into what takes place in the cylinder with steam at 115 lbs. to the inch, and being cut off at 1-6th of the stroke; for, on referring to the temperature of the steam at different parts of the stroke of the engine, we find that steam exists there at temperatures varying from 341 degrees to 141, which leaves a difference, under these changing circumstances, equal to 200 degrees. It is well known that steam coming in contact with metal colder than itself imparts heat thereto, by which a portion of it is converted into water; we know also that there is always a portion of water in the bottom of the cylinder, and on the top of the piston. To illustrate my views, and to give the best practical instance I have yet been able to obtain, I observe that in a small two cylinder engine, the cylinders of which are each six inches diameter and 15 inches stroke—these cylinders were both connected with the boiler, and thence formed two distinct engines, having their cranks set at right angles—in these engines I used steam of 115 lbs. pressure, cut off at 1-6th of the stroke, and with a vacuum on the exhaust side of the piston; the steam, on first coming in contact with the metal of the cylinder and piston, and until it were cut off from the boiler, would, as we have seen, have a temperature of 341 degrees; but if the end of the cylinders and bottom of the piston it came in contact with were not of as high a temperature, a part of the steam would be condensed by imparting heat thereto, and which would be so far a loss as a motive power, the water still remaining in the cylinder; when, on the steam being cut off from the boiler, and by its rapidly expanding, takes a lower temperature; and on the communication being opened to the condenser, the temperature is reduced to 141 or 200 degrees lower than when the steam first entered the cylinder. But whilst the steam rapidly changes its temperature, the parts of metal which it first came in contact with would retain the temperature of 341 degrees, was it not that water being present, which hath a tendency to take the form of steam again in proportion to the loss tension of the vapour by which it is surrounded, and the heat of the bodies it is in contact with. Now, here we see, that we have a vapour of small tension in such a vacuum; whilst we have 200 degrees of excess of heat contained in the piston, together with the top and bottom of the cylinders; the water which, in the shape of steam, imparted this heat at the high pressures, is still there ready to carry it away in the shape of vapour to the condenser, and again prepare the metal to act as a condenser on the introduction of the hot or high pressure steam. It will be remarked here, that the process of cooling, of which I am now speaking, is entirely an internal or insidious one. It remains farther to be noticed how small a quantity of water is thus transposed at each stroke of the engine, from that of steam to that of water, and *vice versa*. Once more, for this purpose, we will suppose the engine to make 100 strokes per minute, as in the case of the engine on which I experimented; if we suppose but half an inch of water thus transposed, we have a loss on the 200 strokes of the piston equal to 100 inches of water per minute, or 6020 per hour. This small quantity of water spread over the interior surface would scarce be perceptible, yet this is more than three cubic feet per hour. I have put this question in such a light as the experience I have hitherto been able to obtain seems to warrant. But as I have, since making the experiment, taken away one of the small 6-inch cylinders, and supplied its place with one of 14 inches, I shall thence be able to obtain a comparison of the difference of effect thus produced. But I do not stop here, as in the other engine I have, which is nearly complete, I have introduced a high and low pressure cylinder, in such a manner as to be enabled to work it expansively in the large cylinder only, by cutting off therein at 1-6th the stroke, whilst, as the small cylinder is but 1-6th of the capacity of the large one, I shall thereby be enabled to obtain a direct practical proof, and which also admits of readily changing it from the system of expanding in one cylinder to that of two. This surely, suit will be in the same engine, and connected with the same boiler, and driving the same work, will be admitted to be a fair and decisive test of the advantages possessed by each in an economical point of view. The question of regularity of motion is certainly much better attained by the use of two cylinders than one; for, by their use, the motion of the engine is rendered sufficiently uniform for most, if not all purposes.

With the view of procuring the simplest and best adaptation, for the purpose of carrying out these my views on the expansive action of steam, I was induced to turn my attention to discover a simpler and better kind of expansive valve, for short and quick-stroked engines, than any I had hitherto found in use; the result was the production of the valve before you, which is simply a piece of metal acting upon the back of the common D valve, the D valve having passages opening to its back, which at one time communicate at the top of the cylinder, and at another time at the bottom. It will thence be seen that, as no steam can get into the cylinder but that which must pass through the passage at its back, that by connecting this valve or disc of metal with a separate eccentric, which on fixing it at any required angle in advance of the D valve eccentric, we are thus enabled to cut the steam off at any part of the stroke, from 1-20 to ½. The recommendation of this valve is that we have no secondary motions, together with our deriving it direct from an eccentric. I must here remark that I have been informed that a gentleman of the name of Bodmar lays claim to this valve as being his invention. How long Mr. Bodmar may have had it in use I have no means of knowing; I have had the model by me since April last; I also had it at work as early as the first part of September last. I am farther bound to observe, that a friend informs me, that in as far as the public is concerned, neither of us are the originators of it, as he says it was some years ago invented by an American, and published in the scientific periodicals of this country.

Owing to the superiority, as it appears to me, of two cylinders, instead of one, for the most economical use of steam expansively, I also turned my attention to the combining in the simplest and most compact manner these two cylinders, so as to prevent as little loss of steam, by cooling and useless expansion between the two cylinders, as possible. For this purpose I invented what I would designate the twin cylinder engine, having one valve serving for the ingress and egress of the steam into both of them; by this means we make one eccentric, one valve, one cross head, and one connecting rod, with one steam box, serve the purpose of both cylinders. Diagrams of the valve, together with a discription, were given in the number of the *Mining Journal* for December 27, 1845.

LECTURE IV.—On the most effective mode of transmitting heat from a hotter to a colder body—On surface and injection condensation with water—On surface condensation with air alone—On the advantages which, in practice, arise from pure water in the boiler—On the direction which the foregoing principles evidently lead us to anticipate—a much more extended application of the steam-engine.

The Author of the material world is also the Author of the human mind; these, his productions, therefore, are, as we are wont to anticipate; well adapted the one to the other; the former giving hints or solicitations to the latter to move away the veil that is cast over her beauties, and behind which are laid up truths or laws, which the mind of man can render extensively useful. It becomes us, therefore, if we would succeed to the fullest extent in bringing out these useful powers, that we keep close to the original, recollecting that its Author is perfect. The first question for our consideration to night is, the readiest means of abstracting heat from one body by imparting it to another. Here I would, as my introduction intimates, lead you for a moment to contemplate the manner Nature diffuses her mighty streams of heat—so that the excess of one clime compensates for the deficiencies of another, and the superabundance in one body to the restoring of equilibrium in those adjacent; thus we find that the heat of the tropics is transmitted to the poles by the stratum of air, on the former part of the earth's surface being surcharged with heat in which state any given volume of air is of less weight than that of colder regions, from which cause the cold air is continually flowing in, to occupy the place of the hotter, whilst the hot air wings its flight in the higher regions of the atmosphere to the colder climates of the globe; the same exchange is also going forward through the waters of the ocean; here we see the grand and beautiful economy of nature, which, by the two simple laws of gravity and expansion, acting through the mobility of fluids, at once produces a cooling effect in the hotter regions, whilst it animates the more frigid parts of the earth. These laws I shall have occasion to call your attention to in reference to condensation; the other laws referring to this matter are those of radiation and conduction, these are generally found to be possessed by substances in the inverse ratio to each other, those being the best conductors which are the worst radiators; for instance, a polished tin plate radiates but very slightly, not more than one-eighth that of writing paper; whilst the lavish radiating effect of the latter is counteracted by its very inferior conducting powers. It is obvious that this must be the case, or we should have bodies of naturally different temperatures; as it is well known that bodies radiate heat at all temperatures; whereas bodies do not give off heat by conduction, except the substances in contact with them are of a lower temperature than themselves. We, therefore, see, that were not the best radiating bodies very inferior in their conducting powers, they would be colder or hotter than the others, as the rays of heat transmitted thereto came from a hotter or colder body; for it is to be remarked here, that radiation takes place between all bodies, and is not dependant upon immediate contact, as is that of conduction. This may be illustrated by a very common phenomena, viz., that if the temperature of the air be the same, the intervention of clouds retards very much the cooling of bodies on the surface of the earth, compared with what takes place when no clouds intervene; the clouds being radiators of heat they impart heat to bodies on the earth; but, on their dispersion, heat from the earth is radiated into space without any exchange. Perhaps a more familiar and simple illustration would be that afforded by the effect the radiation of heat from a tree has in keeping the bodies under it at a higher temperature than those not so protected. Thus much I have thought proper to say, with the view of giving a general notion of the part radiation performs in the diffusion of heat. To apply this, do we wish to prevent the loss of heat most effectually, we first increase the hot body in felt, or such like substance, then cover it over with polished metal; but, although a knowledge of this law is very essential for the retaining of heat, as in the casing of steam pipes and cylinder; yet it is not the one which performs any considerable part in the condensation of steam,—this being due chiefly to conduction and the carrying property of fluids, of which we first spoke.

It would seem to me as if there was much reason to believe that the ultimate atoms of all bodies have the same capacity for heat, and receive, or absorb heat, with equal rapidity; their difference in absording heat when in the solid, liquid, or gaseous form depending, for the most part, upon the rapidity with which such particles can be brought into immediate contact with the hot body. Liquids, in their ordinary state, when the hot body is immersed in, or the heat applied to, the bottom of them, possess this property naturally in a much higher degree than either of the other states of matter; for although the gaseous state gives rise to currents, much in the same way as the liquid; yet, when we consider the great disparity of volume between any given number of atoms, in that of the gaseous state, compared with their volume in the liquid, we have little difficulty in accounting for the disparity which exists in their cooling effect, from the fact, that in their natural state they do not come so rapidly into immediate contact, as must those of the liquid. Whether this view be correct or not in its full extent is immaterial to the question before us. As the fundamental principles on which I base my mode of condensation, depend upon experimental demonstration, which proves that the cooling power depends upon the rapidity with which the particles of the cooling medium, are brought into immediate contact with the hot body, or in the condensation of the steam, the condenser. To verify and determine the relative cooling effect which motion of the hot body produces, I made a great number of experiments, both upon it and radiation, as I was then not fortunate enough to have any knowledge of "Leslie's Researches upon Heat." The substance of these experiments was, that on suspending a tube of one inch diameter and 18 inches long, stopped up at both ends, having a thermometer inserted in it with an aperture for the introduction of hot water, I found, on filling it with water at 180 degrees temperature, and suspending it in a room, it required 12 minutes to cool down to 100 degrees, the temperature in the room being 65. On taking the same tube with the thermometer still in it, and filling it with water at the same temperature, and on giving it a rotary motion equal to 40 miles per hour, I then found the water cooled down to 100 degrees in one minute, all other things excepting motion being the same. Finding this greatly accelerated cooling effect, from giving the hot body motion in the air, I was induced to try the same thing in water; here also I found a greatly increased effect from even a slow motion, not more than two miles per hour. As water had long been used as a medium for condensing steam, it occurred to me that to make a comparison between its cooling effect and that of air, would very much assist me in forming a correct opinion as to what probability there might be to render the air subservient to the same purpose. Here, I confess, I was, at first sight, rather disheartened than encouraged by the result, contrary to the opinion of all whom I had consulted, that instead of its being 9, 12, or 15 times, as they thought, I found it to be 25 times a more rapid cooler than that of air; as the same quantity of heat lost in 25 minutes in the air by the hot water in the tube, was absorbed in one minute, when immersed in water. Another fact of great importance, in guiding us in our inquiries on the condensation of steam, is that motion increases the cooling effect in a much greater degree, as the medium we wish to condense it with approaches the temperature of the steam to be condensed; and as steam takes a temperature at all times corresponding with its pressure, it is clear that with a good vacuum the difference between it and the condensing medium cannot be considerable. These, then, were to me so many facts or principle, showing me the true position of the matter, in as far as the abstract principles were concerned; and in their relation to water, which having been long used as a condensing medium, they formed a sound basis whereon to ground my calculation; whilst the greatly accelerated cooling effects produced by motion gave me encouragement, that great though the difference was between water and air as a condensing medium, yet the prospect was not altogether without a chance of being practically successful. On becoming possessed of "Murray's Chemistry," I was pleased to find that, in substance, my experiments did not differ materially from Leslie's. There was, indeed, an apparent difference; for, as far as my memory serves me, in Leslie's experiments, at the rate of 40 miles per hour, the result was as 1 to 10; but Leslie's experiments were made with a small globe of 6 or 7 inches in diameter, whereas those I have stated were made with a tube. I therefore tried the experiment with a copper globe similar to that described by Leslie, and here I found a very close accordance with his. Without going further into this matter, however, it is sufficient for my purpose to explain that this difference seems to me to arise from the form of the two vessels in which the water was contained, the globe not admitting of as ready and immediate impact of the air as does the tube. It is clear here that the back half of the globe at rapid motions, such as we are here speaking of, would have a slightly diminished pressure of the air against its surface, more so than that of the narrow tube.

We have now seen the principles on which I have based my invention, in so far as they relate to the condensation of steam. We have here three simple facts—the rapidity with which the particles can be brought into contact with the hot surface; the weight of such particles that can be so brought; and the bringing of the particles into contact with the least absorption of power, and in the most uniform matter, over an extensive surface. We shall further elucidate these principles in our remarks on the three different methods of condensation which are before us for our investigation. We will commence with the injection system, as being the oldest, and, as far as simplicity is concerned, I shall not for one moment question its superiority, but endeavour to apply the before-named principles to it, with a view of showing that its efficiency is dependent upon them.

In the first place, the power absorbed in bringing the cold particles into contact with the steam may be said to be none, as it is effected by the pressure of the atmosphere from without. This system, I feel assured, must be found more efficient in practice, in proportion as the quantity of water introduced into the condenser is broken up into small jets or drops, and those diffused over as large a capacity as convenient; by doing this we obtain two of the principles we see so desirable, as the minute subdivisions gave a much greater surface, with which the steam comes in contact, whilst the enlarged area of the condenser not only admits of their greater number, but also a greater degree of motion, as may be illustrated by these small drops of water passing through the space of one foot, as compared with that of two. So that we see that the jet, when it is well subdivided, and not confined by too small a condenser, gives a very great extent of surface to absorb the heat of the steam, with motion to bring the particles of the one more readily into contact with those of the other. These are the practical recommendations the injection system is justly entitled to; but it has got its drawbacks—the first of which is, that it requires six or seven times the weight of water contained in the steam we require to condense to be introduced into the condenser, and as water contains, in its ordinary state, a considerable quantity of air, about five per cent. of its volume, which, on its being introduced into the condenser, with a vacuum equal to 27 inches of mercury, becomes very much enlarged in volume, this air has a tendency so far to vitiate the vacuum. Although the water requires no force for its introduction into the condenser, it, together with the air we have seen to enter there with require a considerable amount of power, for its removal therefrom. This amount of power, whatever it may be, that is thus induced, over and above that entailed on the air pump, by the surface condensation system, is so much to be placed as a set off against that of giving motion to the condenser in my case, or to the fluids in the case of others. This is not the worst objection to the injection system—that being, the mixing the impure water with that which in the other case is made the continually circulating medium between engine and boiler. Were it not for this objection, which is a serious one for tubular boilers, because it carries with it all the evils of deposit, the injection system would, where water is obtainable, leave but little to be desired.

[*To be continued in next week's Mining Journal.*]

THE RAILWAY GAUGE QUESTION.

The following points of interest are from the evidence of witnesses examined before the Gauge Commission:—

R. STEPHENSON ON MINERAL TRAFFIC.—As a miner, I know that narrow gauge waggons are infinitely superior, and more convenient for that traffic, especially for coal traffic; and if the mixed gauge system is allowed to extend in this country, the charge upon coal will, in many cases, amount to a prohibition. I mean that it will charge the coal with a much larger toll. It is all very well to say that the company has a maximum toll, and cannot exceed it—1d. a ton; but they may lower it. Very few railway companies do charge their maximum rates; showing that companies rather tend to lower, and to consider what they can carry, so as to get a decent profit. But in the case of the mixed gauges I pointed out very prominently the consequence of laying down a double gauge from Oxford to Rugby. At 4000*l.* it would be 200,000*l.*, the interest of that is 10,000*l.* a year. That would carry 60,000 tons of coal over the whole distance for nothing instead of 1d. a ton a mile. Therefore, whichever way you look at it, it comes to a commercial question at last. You must have interest for your money, and if the railway companies were not compelled to lay down that additional gauge, they would still be able to pay the proprietors a certain per centage, and carry the 60,000 tons of coal for nothing. Hence it is, that when you are carrying minerals, or such description of merchandise as corn, that will not allow of high charges being made, you must consider the expense of the line.

EFFECT OF CLIMATE ON RAILWAYS.—If it was left to myself, I would neither increase my gauge, nor my wheel, nor my speed, until I had more experience, not only in the construction of engines, but also of the strength of materials. You can never get over the inequalities of the road arising from the change of temperature and weather. You may have the most perfect road, that has been standing for months, and been run upon daily—you shall have a shower of rain, or a continuation of wet weather, during the time the trains are running, and in two days the roads may become positively dangerous, and no ordinary precaution can meet that; therefore, I say, until we can insure our roads being in better order than we can at present, we ought not even to maintain our present speed.—*Locke.*

NARROWEST LOCOMOTIVE LINE.—Mr. R. Stephenson stated, in his evidence before the Gauge Commissioners, that there was a line of railway laid down between Antwerp and Ghent, on a gauge of 3 ft. 9 in., and that he himself had travelled on an experimental line 10 or 12 miles long, laid down by M. Dereider, from Brussels towards Mons. The gradients of this line were favourable—8 and 10, and 11 ft. a mile—but several unusually sharp curves occurred. With a small engine, M. Dereider drove along this line with a load of 40 tons, at the rate of 30 miles an hour, very smoothly. The Union, the same gauge, between Ghent and Antwerp, a distance of between 50 and 60 miles, is in successful operation, conveying both goods and passengers.

TRUE WEALTH OF ENGLAND.—The great internal resources of this country depend on its minerals; a bag of coals would not be so comfortable a thing for the Lord Chancellor to sit upon as the woolsack, but much more emblematical of the wealth of England. It is the coal and not the wool that has made England what it is, and our mineral resources both in coal and iron are yet in their infancy. We have just touched on the fringe of our mineral wealth, something like the cultivation of New South Wales as compared with what it may be. The great increase of railway communication will tend to develope those resources beyond all conception; but any want of uniformity in the gauge will tend to diminish that development.—*Capt. Laves.*

MECHANICAL EXPEDIENTS USED AT BREAKS OF GAUGE.—Mechanical arrangements may be proposed, which may work sufficiently well in an experimental manner, yet when they come into practice, they will be found totally unfit for the every-day traffic of a line. For instance, suppose the transhipment system was adopted: in that case, it would be necessary that all the narrow gauge bodies were precisely alike, and all the broad gauge bodies were precisely alike, in such a manner that two narrow gauge bodies should fit one broad gauge frame. At present, the carrying stock of all the narrow gauge lines is common stock, on the clearing house system all carriages go through and become as it were common stock. But in this case, the companies which were remote from the break of gauge would be required to alter their waggons to the same construction and size as the others, in order to fit the transhipment principle. We may suppose a train of narrow waggons to arrive; the bodies are shifted on to the broad gauge trucks, and the frames are left. It may happen that there are not sufficient bodies or waggons, or loading for these waggons to go back; the frames are put into a siding until the bodies go up, so that if there is a preponderance of traffic in one way or other, there would be a loss of capital by the frames or bodies standing still for want of each other.

MODE OF TRANSFER ON A BREAK OF GAUGE AT GLOUCESTER.—When the train arrives at Gloucester, the pilot engine selects those that will require to go through to Bristol; they are put on a line parallel with the main line, and on the other side of the line is a broad gauge line, on which the broad gauge waggons are standing. They are run into a shed; the sheets are taken off the narrow gauge waggons, and the lighter articles are removed by hand. Of course that involves considerable time. The lighter articles are all taken from the top, those that are brittle, and likely to be damaged; and as to all the heavy packages at the bottom, cranes are required to lift them out and repack them on the broad gauge waggon. The greatest care is necessary, and sometimes the operation occupies considerable time. The broad gauge waggons are then marshalled to go by the Bristol train, and I calculate that all this occupies about five hours.—*M'Connell.*

WHY DID BRUNEL ADOPT THE BROAD GAUGE?—The reasons of Mr. Brunel's adopting so wide a gauge as seven feet were very notorious at the time, and have certainly been since abandoned by him. One reason given at the time was, that the great difficulty would be in getting a sufficiently rapid motion in a piston to revolve the wheels quick enough to get a very high speed. He said we must obviate that by having large driving wheels: he then proposed to have 10-feet driving wheels. These 10-feet driving wheels upon a narrow gauge would have left the centre of gravity in the engine too high; and it was considered that it would not have been safe, and he increased the width of the gauge, and accordingly he increased the width of the rails to seven feet, which would bring the centre of gravity comparatively about the same as the others, with a 5 feet wheel on a 4 feet 8½ inch gauge. This having been adopted for the express purpose of supporting those high wheels, and attaining speed by the great diameter of the wheels; it was found, however, that the wheels were almost impracticable, that there was great difficulty in getting the engine into motion at all with them, and when she got into motion there was great difficulty in stopping her. They have, to a certain degree, abandoned those high wheels, and they find they have no difficulty whatever in getting all the rapidity they want in the piston to work with smaller wheels, and to attain as high a speed as they ever contemplated with a larger wheel.—*Capt. Laves.*

RAILWAY DANGERS.—There was a tunnel that we intended to have made. The whole side of the mountain came down. It was just at the foot of the mountain where the tunnel was to have gone through; we found the material there composed of the *débris* of this mountain. The moment we touched it the mountain began to slip, and we crushed a farm house and some buildings almost two-thirds of a mile from where we touched the hill, and we were obliged to abandon it. It crushed the tunnel in—it crushed 18 in. balk as you would this pen. The canal is just below the turnpike road. Just below that we were obliged to divert the turnpike road. We had great difficulty to get room enough to divert the turnpike road, for the mountain began to squeeze up the bottom of the canal.

STEPHENSON ON THE BROAD GAUGE.—Whilst I think the Great Western has obtained no advantages by the wide gauge, I think its introduction has involved the country in a very great inconvenience, because wherever a meeting of the gauges takes place, it must create an inconvenience and a very serious one; in fact, it is nothing more or less than tantamount to asking the Great Western, or the London and Birmingham, to move their passengers at Wolverton; that is an exaggerated case, perhaps, but still it is one which, if it take place in the midst of a great traffic, would, I believe, give to canals, or to any other existing mode of communication, a decided advantage over a railway. I stated, in my evidence before the Wolverhampton committee, that from Rugby, to which point it is proposed the wide gauge should come, the Derbyshire coalowners, or the Leicestershire, would inevitably send their coals by canal in preference to changing the gauge, because they would have to transfer their coals there. It is proposed, in order to avoid the actual removal of the coals, to move them in boxes, and to have loose bodies to the waggons. Now that is a system which has been tried over and over again, and which has always failed. It was tried on the Liverpool and Manchester line originally. There was a great coal pit about 200 or 300 yards from the line of railway; they wanted to send coals to Liverpool, and small waggons were placed on the back of large waggons and carried to Liverpool. That was soon abandoned. Loose boxes were tried at Bolton for the purpose of leading the coal into the town by horses, without changing at the station. They were eventually abandoned. I tried the same thing at Canterbury, and we were obliged to abandon it, because sometimes we had under frames when we had no boxes, and we could not fit them in. It is almost impossible to make this intelligible to anybody who has not come directly in contact with the inconvenience of the system. Rather than introduce the loose-box system it would be better to move the coals by hand from waggon to waggon, because there would be an end of it.

ON COAL MINING OPERATIONS.

ESSAY UPON THE VARIOUS SYSTEMS PRACTISED IN THE CONDUCTING OF COAL MINES, AND OF THE METHODS EMPLOYED IN COUNTERACTING THE EFFECTS OF INFLAMMABLE AIR: BY MATTHIAS DUNN, ESQ., MINING ENGINEER.

[*Concluded from the Mining Journal, March* 14.]

In proportion to the largeness of the area to be commanded by such sinking, as also the peculiarities of the field of coal, upon account of faults, boundaries, and other circumstances, so does it call for mature and practical consideration, as to the manner of subdividing it, and of bringing gradually and judiciously each division of the work, into the proper position for carrying away the pillars; this is done by the formation of barriers of coal, or the adopting those naturally formed by faults, for the purpose of preventing any crush or creep which may take place in one quarter from extending to others, as well as inclosing and managing, or counteracting, the effects calculated to arise from the adulterated air. At the same time, it must be observed that where the pillars are rightly proportioned to the depth, &c., each pillar acts as a barrier for its respective pressure, and no such crush will occur. The effect of improvident working in this regard is seldom duly appreciated, but such will be sensibly understood by those interested in colliery operations, as well as others who may be consumers, when I remind them, that where the large coal is worth 8s., and the small coal 2s. per ton., that every ton of coal unnecessarily broken into small is attended with an absolute loss to the proprietor of 5s. or 6s. per ton—all expenses being, within a fraction, equally chargeable upon one as upon the other. Therefore, assuming the minimum size of pillar at 5 yards for a cover of 30 fms., then the size should be increased at a ratio something like 1 yard to every 10 fms.:—Jarrow 190 fms.; is wrought with boards, 5 yds.; pillars, 23 × 17; and holings, 2 yds. wide. The taking away of these pillars is much facilitated by their limited size, because, by having a railway up every board, the intervening space of 8 yards is carried away with much greater facility than if the space was three times as large. By the Lancashire method, the quantity taken away by the first working, assuming the places to be all 2 yards wide, and the pillars left 30 yards by 20 yards, will be as follows:—viz., $\frac{1}{3}$th, and all taken out of narrow places, whereas the Newcastle method would obtain $\frac{1}{11}$ pts. only about $\frac{1}{5}$th of which is taken out of narrow workings—the advantage of which must be obvious to practical men. With regard to expense, I am free to admit that, in *point of labour*, the cheapness is on the side of large pillars; but when the cost of timber, and the value of the coals are brought into consideration, the advantage is manifestly in favour of the small pillar, and it is especially advantageous in the arrangement of numbers of workmen, and the consequent command of quantity. The working of pillars, be it carried on upon whatever principle, brings with it the difficulties of ventilation; for the previous communications with, or guides to, the air current having been necessarily removed, accumulations of fire damp or carbonic acid gas consequently follow,—and if no provision is made for carrying it off from the workmen, it will, as a matter of course, lead to perpetual inconveniences, and, too frequently, to accidents, endangering the life of the workmen, and it is oft attended with fatal results, which it is even painful to contemplate. It is, therefore, laid down, as an axiom, in the Newcastle district, that the ventilation should be so arranged, that the return air from these deads should be conveyed by passages, remote from any interference with the ordinary work, to do which requires a subdivision of air columns, crossings, and various devices—it being imperative in these arrangements, that the fresh air should have a tendency to escape from the workmen through the deads into the appointed return drifts, thereby counteracting any outward effusion of gas.

$30 \times 2 = 60$
$20 \times 2 = 40$
100 and
$30 \times 20 = 600$

To accomplish these desirable ends, the main column is frequently divided and subdivided 10 or 12 times, comprising several crossings, or tunnels, whereby the fresh air passes along the horse road inward, and the foul air crosses over on its passage outward, by means of arches or tunnels. These columns must all necessarily meet, at the bottom of the upcast shaft, but by the mixture, in ordinary cases, the danger may be said to be neutralised, the whole ventilating current being accelerated by a suitable furnace, connected by a brick arch with the upcast shaft. As relates to the conveyance of the coal, one of the first and material considerations is, the laying out of the intended horse roads, incline planes, tram ways, &c., in which departments great improvements have been effected during the last 10 years. I shall, therefore, best accomplish my object in shortly describing the sort of practice which has now been established, and considered to be the most generally advantageous:—1. Iron, or wooden, tubs, carrying 6 to 8 cwt., with wheels from 9 to 12 in. diameter, and adapted to travel to the working shafts.—2. Edge railways, with turns and crossings, to suit the working places.—3. In long distances rolleys are used, with wheels 20 to 22 in. diameter, carrying two or three of these tubs from certain depôts, and drawn by horses.—4. Self-acting planes, to connect the levels, and take advantage of the inclination of the seam.—5. Wooden conductors in the shaft, whereby a *cage* is guided, and which contains one, and sometimes two tubs.—6. Suitable screens at the top of pit, whereby the round coal is, by simple and mechanical means, separated from the small, after such proportions as the especial circumstances of the trade may demand. —7. The management and control of the machinery, to produce 300 tons per day, will need constant revision and alteration, as circumstances may arise—such as the reversal of the air currents, the change of horse roads, the dealing with faults, &c., independent of the various incidents which occur hourly amongst the workmen—an overman of skill and practice is essential (to be supported by a proper staff of assistants), who is competent to carry into effect the safe and effective working of the mine, under the directions of the proprietor, or viewer. —8. The hewer to work by the ton, and, after assisting to fill or load the tub, then to have no more concern with the coal; the putter also to work by the ton, and convey the coal from the various hewers to the shaft, or to the depôts, from whence it is taken by the horses, it being solely the duty of the driver to convey them to the shaft.—9. It is impossible to manage a work of this sort, as it ought to be, without a regular plan being kept of the progress of the workings, exhibiting the line of faults, &c. The above outline, then, may be taken as the description of a colliery working, upon the most approved system, in a district where coal working is carried on more extensively, and under more varied circumstances, than in any part of Great Britain; and, as far as my experience goes, this system possesses more comprehensive advantages than any other. It is, moreover, a system which may be introduced, or ingrafted upon almost any work.

Against the introduction of improvements many persons are found, who offer objections simply on the score of the expense which may be attendant upon changes, where another, but more imperfect, system is extensively in use, and other management prevails. Others, again, fancy that changes, however beneficial, are not always practicable, on account of the workmen. But the main of all objections rests on the fear, that the change will not produce the desired effect in the particular colliery to which it is proposed to be applied, notwithstanding its admitted general utility elsewhere. In conclusion, therefore, it will be my object briefly to answer the objections thus advanced. The extent of change, and the propriety of applying it under the peculiar circumstances of each case, can only be well judged of by a practical and experienced, as well as prudent, person, who certainly could not be deemed such were he to deal indiscreetly with a work already extensively fitted up, and in full operation. As to the objections which may be raised by the workmen, as far as my experience goes, they are futile, inasmuch, as any improvement, which has for its object the affording of facilities, must have a tendency to ease the labour otherwise required, and to ameliorate the hardships of the workpeople; and, if such be the case, who then can doubt that the natural competition, to procure employment in an easy and safe work, would very soon equalise the market price of labour; for instance, the coal is now conveyed upon sledges, requiring two boys, and suppose that it were practicable to substitute a railway, whereby one boy could do as much as both did before, would any reflecting person decline the adoption, upon the score of opposition coming from the workmen? Certainly not, because the improvement is valueless, if it would not enable equally good terms to be given to the workman as before, in which case his approbation would be insured, other instances of a like nature might be cited; but I have taken a simple case as illustrative of my position. Indeed, there can be no question but that the working of coal mines in the Manchester, as well as other districts, is capable of much improvement. I do not mean to allege, that this system, or that system, should be dogmatically substituted; but that a discretional application of well-attested principles to suitable circumstances might be introduced, so as to ease and simplify the working and ventilating of the mines—thereby tending to cheapen the cost of production, to advance the safety and comfort of the collier, and, at the same time, to insure that a greater proportion of the mine than heretofore should be raised and brought into consumption: were such to be case, then would advantage accrue, not only to the proprietor and the workmen, but the nation would be benefitted by the increased duration of her collieries.

Before concluding these remarks, I may be excused for adducing the extraordinary oversight which has occurred, not only with Messrs. Lyell and Faraday, the Government commissioners, who investigated and reported upon Haswell Colliery, after the explosion of September, 1845, but also with the talented Dr. Reid, in their notions of the laws which govern the working of the air in the interior of mines. The hon. commissioners proposed "*That the accumulating gas of the goaves should be carried off to the return air, or upcast shaft, by means of pipes extended up into the fractured parts of the roof, so to draw off the inflammable air.*" Now practical men all know, that if such pipes enabled the air to escape by a shorter course than by going the circuit of the workings, that the *general current would have a tendency so to escape*, to the utter detriment of the rest of the workings; indeed, such a course would be destructive of the principles of ventilation, which require that the air should be husbanded and forced by means of stoppings, against its natural desire to escape—that therefore *a pipe to remove gas, without at the same time carrying off the vital current of the mine, must be made to act upon an insulated body of gas, and that insulation* is not applicable to goaves. My printed review of their report details at length the reasoning against their theory; Dr. Reid, in his *Treatise upon Ventilation* (p. 422), in remarking upon the inefficiency of bratticed shafts, observes—"It is scarcely necessary to remark, that unless the partition be made and *preserved air tight, and the discharged air be separated carefully from that which enters, part of the vitiated air in the upcast shaft must always be returning into the downcast shaft, and excluding a portion of fresh air, which would otherwise enter.*"

Now it so happens, that the very reverse of what Dr. Reid imagines is the fact; for, in the first place, the temperature of the upcast (especially in furnace pits), is generally more than 20° higher than that of the downcast shaft—therefore, instead of the adulterated air passing from the upcast into the downcast shaft, it is *the fresh air that has a continual tendency to leak through the brattice into the upcast shaft*, such leakage being regulated by the respective temperatures of the air, the sizes of the shafts and air courses, and the distance to which the air is to be forced to travel in the mine; and it is only owing to improper stoppages, or interruptions, in the upper part of the upcast shaft, that any of its smoke will be seen to pass into the downcast side.

These facts I do but adduce to show how necessary it is to check and fortify science with a sprinkling of practice, and that, however talented and enlightened a philosopher may be, there is a necessity for adhering to principles that will bear the test of practical application.

I cannot let this opportunity pass without paying a tribute of respect to my worthy friend Dr. Clanny, the acknowledged father of the principle of burning a light safely in the midst of inflammable air. His first safety lamp was exhibited before the Sunderland Society for Preventing Accidents in Mines, in the year 1812 or 1813, being considerably previous to the period when Sir H. Davy's attention was called to the consideration of the subject, and he has unremittingly laboured in the cause of science and humanity ever since, having at this moment an improved lamp now exhibiting at the Society of Arts, Adelphi, which has been tested by Dr. Reid, and other men of science, and pronounced amongst the first for beauty and utility. It is much to be regretted, that the mining and scientific world have never yet presented the doctor with some testimonial due to his scientific researches, and to his universal benevolence; for whilst others have been handsomely rewarded, he has been most grievously overlooked, although the undisputed originator of the safety lamp principle.

METALLURGIC TREATMENT OF GOLD AND SILVER IN HUNGARY AND TRANSYLVANIA.—No. IV.

[*Concluded.*]

Mixed Melting.—Making use of only one basin, in which they place the lead. Rich roasted mats, 200; filings, 100; litharge, 32; argil, 30; residue in the furnace, 36; and lead in the exterior basin, 30. The operations, above-described, constitute the whole treatment, as they concentrate in the lead the total of the gold and three-fifths of silver of all the ores, and the definitive extraction of these metals only require cupellation. In the treating of the last description of mats, on which the metallic lead can no longer act by imbibition to advantage, as they only contain 5 loths of silver, and 16 to 20 per cent. of copper. It is well known, all the difficulties which the separation of copper from silver, presents in these complexed methods; and, unfortunately, as there does not exist any copper furnace in Transylvania, they have the greatest difficulty to make the most of the copper mats, or black copper, which produce the treatment of silver ores. At Offenbanya they melt, by half-high furnaces, the roasted mats; and the black copper is warehoused, to be treated when they have fixed on the method to be employed. The roasting is done in the most complete manner, as they do not give it less than 12 fires, and then they melt it with the poor, and very quartzose silver ores. The mixture is composed of 100 cwts. of roasted mats, and 25 cwts. of argentiferous quartz. They melt 80 cwts. in 24 hours, consuming 720 per cent. of coal for each cwt. of mat. From this they obtain 16 per cent. of very impure black copper, not containing more than 85 per cent. of metallic copper. The cupellation is generally made with very little care, as they have no interest in impoverishing the litharge, as it is destined to serve again in the disargentation. At Zalathna, they give 80 cwts. to 30 loths. Litharge is directly employed in the imbibition, or well revived—this latter operation is done in the common half furnace. It gives a loss of lead of 4 per cent., which is considerable. The average loss of silver and gold, in its whole treatment, is valued at 5 per cent. of the total quantity of this metal, contained in the ores, which has been verified for upwards of more than 10 years in all the furnaces of Transylvania, and is an official standard, that serves as the base for the deduction that is made to the proprietors of mines in the purchase of their ores, and, no doubt, is correct. It must be understood, that this has only reference to the working of silver, and does not include the losses that are naturally experienced in the disargentation of the mats of copper, which increase 1 per cent. in Lower Hungary. The loss in lead at Offenbanya is 16 per cent. on that employed in melting, and at Zalathna 25 per cent., which difference is caused by the method of imbibition, generally speaking, being very imperfect. In conclusion, there is not the slightest doubt that, in a few years hence, in consequence of the improvements that are making in England, France, and Germany, in steam machinery for mining purposes, that a great progress will take place in Hungary and Transylvania, in the methods of treating their valuable metals and working their mines, being the birth-place of mining enterprise.

MANUFACTURE OF LUCIFER MATCHES.—This manufacture has, of late years, become an important branch of trade in all parts of Europe. Previous to the year 1830, the number of workmen employed in Paris and its vicinity in making lucifers, did not exceed 100—while at present they exceed 4000. The following are some of the proportions of ingredients used:—chlorate of potash, 6 lbs.; gum arabic, 4 lbs.; gum tragacanthe, 1 oz.; phosphorous, 4 ozs.; tannin, 4½ lbs.; Prussian blue, 0·100 parts.—In Germany, where the manufacture of lucifers, and noiseless inflammable paper, for lighting pipes and cigars, is of a very superior nature, they employ the following recipes:—Gum arabic, 16 parts; phosphorus, 3; nitrate of potash, 14; manganese (black oxide), 16—or, phosphorus, 3; nitrate of potash, 10; red ochre, 5; glue, 6; smalts, 2. The following is an excellent percussion paste:—Phosphorous, 17 parts; nitrate of potash, 38; red ochre, 24; glue, 21. The unhealthy nature of these manufactories, is the inhaling of the phosphoric vapours, which effect the gums and bones; but, by proper ventilation, the vapours may be carried off, and the atmosphere rendered free from any injurious tendency.

LIFE PRESERVING APPARATUS.—A plan for saving the lives of persons when shipwrecked on the sea coast, was experimented on at Woolwich, on Thursday week. It is the invention of Capt. Jerningham, commanding the coast guard at Yarmouth—a station which has afforded him excellent opportunities of improving and perfecting his plan. The apparatus consists of an anchor, constructed somewhat similar to Porter's patent; but the flukes are without barbs, and each turns on a pivot independent of the other, and shut close to the shank; this anchor, which weighs 34 lbs., is closed, connected with a sufficient portion of line, and placed in a 5½-inch brass mortar; on being fixed, the flukes open in their flight, and are thus secured by a spring, the rope is coiled round a wooden roller, fixed on a hand barrow, and the whole apparatus can be got ready in three minutes. The range was 180 yards, carrying a 2-inch rope; when fired on land it required 12, and when into the Thames, 17, men to bring it home. These machines, stationed at intervals round our coast, would greatly tend to the preservation of human life, and might be established at comparatively little cost.

STIRLING'S PATENT FUEL.

We have before us a pamphlet, containing reports of analysis and certificates of the qualities of this fuel, which shows the rapid improvements which are taking place in the manufacture of artificial fuel—rendering valuable, as an article of commerce, all the small coal which had, until lately, accumulated at the pit's mouth, and, in many cases, had become an annoyance. From the analysis here described by Dr. Schafhaeutl, Professor of Chemistry, it appears that he took the most particular and delicate means possible to obtain a correct analysis. He constructed an apparatus, by which the gas from the chimney of the furnace in which the fuel was burning was carefully collected; and, being brought in contact with both moistened and reddened litmus paper and acetate of lead paper, proved the presence of an extremely small portion of an acid or acid salt, and the entire absence of all free volatile alkaline bodies. In carrying out the experiments, he found the composition of the best coal dust from which the fuel is made, and the patent fuel itself, to be as follows:—

COAL DUST.		PATENT FUEL.	
Hydrogen	5·10	Hydrogen	5.30
Carbon	84·32	Carbon	86·21
Oxygen and nitrogen	7·74	Oxygen and nitrogen	5·46
Ashes	2·81	Ashes	3·02
Loss	·03—100	Loss	·01—100

The increased proportions of carbon and hydrogen insuring a greater calorific, or heating, power than that of the coal from which the fuel is prepared. A comparative trial of the fuel, and the generally-used steam-boat coal, known as "Hartley's hard," was made in the *Orwell*, between Ipswich and London, by J. Parkes, Esq., C.E., when the steam was maintained at precisely the same pressure in both voyages; the number of strokes per minute were nearly identical, and the result was the consumption of 10,478 lbs. of coal, and 8036 lbs. of patent fuel, or 24 per cent. in favour of the latter. At a trial made at the works of Messrs. Fairbairn and Co., Millwall, it was found that one ton of the fuel bricks was equal to 26½ cwt. of coal; and supposing it to be employed on a large Atlantic steamer, the case would stand thus—viz.:

Coal for 20 days	750 tons, occupying		33,750 cubic feet.
Bricks of fuel, for 20 days	566 „	„	18,395 „
Saving in Weight	184 tons, and space		15,355 cubic feet.

Mr. West, of the Thames Plate Glass-Works, and Mr. Apsley Pellatt, of the Falcon Glass-Works, have borne testimony to the excellency and purity of this fuel, and its freedom from sulphur, smoke, and dirt—so injurious to glass surfaces. It is stated to ignite readily, burn with a clear bright flame, emits very much less smoke, and of a lighter colour than that from coal—forms but little clinker, will burn for hours without stoking, and its peculiar cleanliness and economy, renders it highly useful for steam-boats.

COAL CARRYING TO FRANCE.—The contractors for the supply of English coal to the French Government, we learn from *Le Commerce*, have been petitioning to be released from that part of their contract which requires them to send the coal in French vessels; because, say they, they cannot procure French vessels for the purpose. Our Parisian contemporary denies the statement of the contractors, and declares that French vessels can be found, but certainly not at freights by any means so low as those at which English shipowners would carry the coals! This fact is of no trifling importance; inasmuch as it proves, in the first place, the extreme folly of the French Government in persisting in a system of exclusiveness, which augments the price of an article largely required for national purposes; and, in the next, it explodes the miserable misrepresentations which are constantly being made in this country, that the British shipowner is unable to compete with his continental neighbour in the carrying trade of the world.—*Gateshead Observer.*

CHARGE AGAINST A COAL MINER.—At the petty sessions, on Monday, a coal miner, named John Barrett, was charged with having left his employment at the colliery of Mrs. Taylor and Sons, Holebottom, Crompton, without giving the requisite notice.—Mr. Hunt, solicitor, Rochdale, appeared for the complainants; and Mr. W. P. Roberts, the "miners' attorney-general," for the defendant.—Mr. Robert Taylor, a partner in the colliery, stated that the man had left, on Thursday last, without giving any notice whatever. He had worked for them before several times, and had then given a fortnight's notice, as was usual. On cross-examination by Mr. Roberts, the witness acknowledged that the coal miners in their service, including the defendant, had to go two miles or more to receive their wages each pay-day, to a public-house, kept by witness's brother-in-law, a person named Bardsley; and he also admitted that 6d. per fortnight was taken out of the miners' wages to pay for liquor, but he said the men had made an agreement amongst themselves to that effect. A printed copy of certain rules to be observed by the miners in the service of the complainants, was put in; but it was argued by Mr. Roberts, at considerable length, that these rules were not binding, inasmuch as they placed no obligation on the employer, and as they did not bear the signature of any of the firm. Mr. Roberts commented on the extremely improper conduct of the complainants, in having carried on a gross system of taking 6d. per fortnight from each miners' wages for liquor, for five years, besides obliging the hands to walk upwards of two miles to a public-house in Oldham, very properly called the *Trap Inn*, where they received their wages. The 5th and 6th Victoria, chap. 69, prohibited the payment of miners' wages at public-houses, beer-houses, &c. and any agreement made at such places was not binding. Mr. Roberts concluded by stating, that if the complainants would pledge themselves to abandon the practice of paying the miners at a public-house, and deducting money for liquor, whether the men consented or not, the defendant would willingly return to his work, and give the requisite notice.—Mr. Hunt on the part of the complainants, ultimately made a promise that the practice of paying the wages at a public-house should be discontinued, and under this arrangement the defendant consented to return to his work.—*Manchester Examiner.*

A FROG FOUND IN COAL.—A few days ago, as two colliers were working coal in a pit, in the neighbourhood of Bathgate, Linlithgowshire, they were astonished, on breaking a large piece of coal, to see a living frog skip nimbly from it. The niche in which it had lived was perfectly smooth, and of the exact shape of the frog; and, to all appearance, without crack or crevice to give it air. The hind legs of the animal are at least twice as long as those of an ordinary frog—the fore legs almost gone. It is of a beautiful bronze colour: it leaped briskly about the moment that it was liberated from its dark abode.

THE HIGH LEVEL BRIDGE ACROSS THE TYNE.—We learn from the Newcastle papers that the drawing of this bridge has been prepared, under the direction of T. E. Harrison, Esq., the engineer of the Newcastle and Berwick Railway Company. The bridge will extend from the Castle Garth, in Newcastle, to the high ground on the south side of the river. There will be two roadways, one a level with the Castle Garth, for carriages and foot passengers, and the other at an elevation of 22 ft. above it, with three lines of railway, for locomotives. The carriage road will be 1380 ft. in length, on a straight line, and the locomotive way will be immediately above, with the exception of a space at each end, the locomotive line diverging at a point about 270 ft. from each end to the west on the north side, to run into the general station to be built at the Forth, and to the east on the south side, to form a junction with the main line southward. These diverging portions of the locomotive way will be supported on handsome colonades, each consisting of 20 metal pillars. The bridge itself will consist of six river arches, with four land arches on each side, the former 124 ft. 10 in., and the latter 36 ft. 3 in. span, the land arches diminishing in altitude from the foundation upwards, corresponding with the declivitous banks of the river basin. These arches will be supported on piers of solid stone masonry, and will be constructed of cast-iron. The piers will be 48 ft. by 16 ft. 6 in. in thickness, and in extreme height about 131 ft. from the foundation, having an opening in the centre through each. These piers will be built on piles piercing the bed of the river about 50 ft. on the north side, and about 20 ft. on the south side. The roadway for carriages and foot passengers will be 85 ft. above the level of high water mark, suspended by rods from cast-iron arches, springing from the piers at the carriage road level, and the railroad will rest on the crown of these several arches, being supported also by stays, from the arches at points of the spaces between each suspensor. The stays and suspending rods of the bridge will be surrounded by a covering of metal. The carriage way will occupy the centre of the lower bridge, being 20 ft. wide, and it will be separated from the footpath on each side by a row of light metal pillows, the footpaths being each 6 ft. wide, with handsome balustrading on the outside, about 4 ft. high. The locomotive way will be protected by a similar row of balustrading, which will give to the structure, when viewed from a distance, a most magnificent appearance. The whole of this part of the bridge will be constructed of cast-iron. The approaches to the carriage road and footpaths will be through an entrance on each side of the river, in three proportionate arches, formed of solid masonry, which will be surmounted by a statue, that at the north side of the river being designed for George Stephenson, Esq. The general station in the Forth will extend from the Infirmary to the Museum, and occupy the entire space of ground between Forth-street, and the buildings on the opposite side of Scotswood-road; the road being diverted from its present direction to accommodate it to the general plan. Some idea of its proportions may be gathered from the fact, that it will occupy 11 acres of ground, and will afford about 2500 feet of platform for the arrival and departure of passengers—the superficial extent of platform being about an acre. The Newcastle and Berwick Railway will proceed from the general station, by viaducts across the principal streets of the town, to join the North Shields Line, which forms a portion of the Berwick scheme; and, as the Newcastle and Carlisle Railway will also terminate in the Forth, the general station will amalgamate the termini of all the great lines of railway traversing the district, north, south, east, and west, and it is calculated that at least 160 trains will arrive and depart daily

Mining Correspondence.

ENGLISH MINES.

GOONLLACK.—The following statement of cost and returns, for the months of Nov. and Dec., was prepared for the account, held on the mine, March 17:

Dr.—Labour, coal and incidentals			£1199	18	1	
Merchants' bills			744	9	11—1944	8 0
Cr.—Balance in purser's hand last account			£ 560	7	9	
Copper sold Jan 8, 149 tons 6 cwt.	£1067	5 5				
Dues	59	5 10—1007	19	7		
Tin sold, 34 tons 14 cwt. 2 qrs. 19 lbs.	1390	1 0				
Dues	69	10 0—1320	11	0		
Sundries		14	10	5—2903	8 9	
Profit					£ 959	0 9
Dividend of 5*l.* per 1-100th share					500	0 0
Leaving in the purser's hands					£ 459	0 9

(The next account will be held on the mine the 19th May). J. H. JAMES.

BARRISTOWN.—March 20.—The lode in the 18 fm. level end west is 3 ft. wide, producing over 3 tons per fm.; the eastern end is 2 ft. wide, producing 2½ tons per fm.; we have driven 20 fms. on the lode at this level, and find it very much the same in character. The lode in the eastern end, adit level, on the middle lode, is 2 ft. wide, composed of gossan, with stones of lead. The winze sinking in the 12 fm. level, west of flat-rod shaft, has intersected a branch of the lode, 6 in. wide, with a good mixture of lead; it is 5 fms. under the 12 fm. level.—THOMAS ANGOVE.

BEDFORD UNITED.—March 24.—At Wheal Marquis, the lode in the 80 fm. level east is 18 in. wide, and poor. In the 70 fm. level east there is about 2 fms. more to drive north to cut the lode; the lode in the stopes, in the bottom of this level, is worth 14*l.* per fm. The lode in the 58 fm. level east is 2½ ft. wide, and worth 8*l.* per fm. At Ding-Dong, the lode in the 24 fm. level, west of Thomas's engine-shaft, is 3 ft. wide, composed of spar, mundic, and good stones of tin. At Wheal Tavistock, the lode in Phillips's engine-shaft is 2½ ft. wide, composed of spar, mundic, and ore. The lode in the 35 fm. level, east and west, is 2 ft. wide, producing good stones of ore. In the south engine-shaft we are carrying about 5 ft. of the lode (no north wall), which is composed of gossan, iron, and ore—a very strong kindly lode indeed.—J. PHILLIPS.

CALLINGTON.—March 23.—At the north mine, in the 90 fm. level driving north, the lode continues very promising—worth, in the present end, 6*l.* per fm.; the south level still continues to open good tribute ground. In the 80 fm. level the lode continues productive, leaving ground that will work at a moderate tribute. In the 70 fm. level driving north, the lode is worth 6*l.* per fm. —the ore ground is favourable. The 80 fm. level driving west, on the copper lode, is looking more kindly; the ground is also favourable; the pitches on this lode continue to look well. At the south mine the lode has not been taken down since we commenced driving north. In the 100 fm. level driving south we are opening ground that will set at 6*s.* in the 1*l.*; in the north end the backs we are leaving will set at 8*s.* in the 1*l.*, on the value of the lead. In the 90 fm. level south the lode is worth 24*l.* per fm.; in driving north we are opening tribute ground. We sampled, on the 21st inst., 94 tons of silver-lead ores.—J. T. PHILLIPS.

EAST TAMAR.—March 23.—At Whitsun, we have forked the water, and cleared up Hitchins's engine-shaft to the bottom; it is sunk 7 fms. under the 46 fm. level, being 53 fms. below the adit, or 73 fms. from the surface; the last 10 fms. is sunk perpendicular; there is a cross-cut driven at the bottom, 10 ft. east, to find the distance of the lode from the shaft, and a hole bored 4 ft. 6 in. in the end, which I believe is near the lode, as there is a stream of water coming out from the hole; being anxious to ascertain the depth of the mine, we left some ground in the shaft not taken down, likewise we have timber dividings, casing, &c., to put in for the whim kibble to work, which I expect to complete in a fortnight. The 36 fm. level north is looking very well; the lode is 2 ft. wide, good work. At the south shaft we have discovered more whole ground that will set at a moderate tribute. At Furzehill, the men stoping south at the 30 fm. level have met with a slide, which they have gone through, and the lode at present is looking very promising. Next Saturday we shall set two new pitches, which will increase our sampling.—B. ROBINS.

GREAT WHEAL WILLIAMS.—March 23.—We have driven the Hartwell adit end this month 5 fms., and have completed the railroad to the end; the ground is favourable; the cost is 30*s.* per fathom; the lode is about 12 in. wide, composed of flookan, soft sugary spar, mundic and lead. I think we shall drive 12 or 14 fms. during the present month.

GUNNIS LAKE.—March 24.—At Chilsworthy, Bailey's engine-shaft is 5 fms. 6 in. under the adit level; the lode is about 2 ft. wide, composed of gossan and spar—a very promising lode. During the past week, the men who had been employed costeaning, were put to sink, and lay open a little on the supposed middle lode, which is upwards of 2 ft. wide, and very kindly. The south lode, in the costean pits west, is not quite so large as in the adit level, although equally kindly; the men are still engaged shoding west.—W. RICHARDS.

HAWKMOOR.—March 24.—The lode in the western engine-shaft (about 17 fms. 4 ft. below the surface) is small, and poor; the south engine shaft is 19 fms. 1 ft. 6 in. below the surface—no lode has been taken down; the progress in this shaft, for the last fortnight, has been impeded, the men having been engaged putting in stays and penthouse to cut off the water. In the 15 fm. level, west of Hitchins's engine-shaft, there is no alteration; in this level east the lode is 2 ft. wide, composed of capel, spar, and ore—saving work.—P. RICHARDS.

HOLMBUSH.—March 24.—Hitchins's engine-shaft is sunk 7½ fms. below the 110 fm. level; the ground in the bottom of this shaft is very hard. The ground in the rise, over the 120 fm. level, against this shaft, is more favourable a great deal. In the 110 fm. level, west of Hitchins's shaft, the lode is 12 in. wide, and worth 15*l.* per fm. In the 100 fm. level, west of Hitchins's shaft, on the north part, the lode is 18 in. wide, and worth 26*l.* per fm. In the 100 fm. level west, on the south part, the lode is 10 in. wide, producing stones of ore; at the same level, driving south, the lead lode is 5 ft. wide, composed of prian, spar, and small strings of lead; in the rise, above this level, the part of the lode we are rising on is 4 ft. wide, composed of prian, spar, and small branches of lead. In driving south, at the 100 fm. level, from Flapjack lode, we have intersected a branch 10 in. wide, underlaying north, composed of spar, mundic, and spots of copper ore: we intend to drive this cross-cut little further south. In the 90 fm. level, west on the north part, the lode is 10 in. wide, composed of mundic and stones of ore—this end is for the present suspended, and the men put to sink a winze below this level to make a communication to the rise above the 100 fm. level as quick as possible. In the 90 fm. level, driving south on the lead lode, we have intersected the copper lode, and are driving west on it, the lode is 20 in. wide, and nearly all ore; but we have not taken it down, nor shall we until Wednesday—therefore we cannot correctly speak of its worth; being so near the lead lode, we shall be able to report more fully next week. In driving south, at the 62 fm. level, the ground is not so favourable. The rise in the back of the 80 fm. level, against Bray's shaft, is suspended, and the men removed to sink a winze under the 90 fm. level, to communicate to the rise above the 100 fm. level on the lead lode (on the south part), which we hope to hole this month; after which we shall resume the rise against Bray's shaft.—W. LEAN.

LEWIS MINES.—March 21.—Kuskey's engine-shaft is 5 fms. under the 42 fm. level; the lode in the bottom of the shaft is 2 ft. wide, producing some stones of good quality yellow ore, and very promising, much improved since our last report. The lode in the 42 fm. level west is at present disordered by a cross course; the lode in the 42 fm. level end east is 14 in. wide, producing some spots of tin, with occasional spots of yellow ore; in the south cross-cut, at the same level, we have just passed through a branch producing some stones of tin. Wheal Nutt engine-shaft is 4 fms. 3 ft. under the 50 fm. level; the lode, by reason of its underlay, is now south of the shaft. The lode in the 50 fm. level end east is 2 ft., worth 7*l.* per fm. for tin; the lode in the 50 west is 2½ ft., tinny throughout. The lode in the 40 fm. level end east is 18 in. wide, producing some tin; the lode in the 40 west is 2 ft. wide, yielding some tin. The lode in the 30 fm. level end east is 2 ft. wide, worth 40*s.* per fm. for tin. The lode in the 20 fm. level end east is 18 in. wide, producing tin, and kindly; the lode in the 20 fm. level end west is 2½ ft. wide, worth 30*s.* per fm. for tin; we are also driving a cross-cut north at this level in a favourable strata, to intersect our north lode in Trevean ground. The lode in the 10 fm. level end west is 2 ft. wide, set at 10*s.* per fm., and 8*s.* in the 1*l.* for saving the tin—a very promising lode. Our stamps are still continuing to work well, but we are fearing, as the summer months are fast approaching, and our tinstuff increasing, that we shall come short of a full supply of water for our stamps and dressing floors. We have sent to the burning-house since our last report 15 tons 10 cwts. of witts, and hope to send 2½ tons more against Thursday next, expecting the whole, when burned and prepared for the smelting house, will sell for about 400*l.*—S. S. NOELL. PETER EDDY.

LITTLE DUKE.—We have not done much since my last, but have now men and horses at work here also. I will get both mines mapped for the meeting.—B. COOKE.

SOUTH WHEAL MARIA.—March 24.—The reason why I have not reported this mine within the last fortnight is, because during the late heavy rains our grass water was too fast for the horse whim to keep, consequently we were obliged to stop the shaft; but we are again clear of water and at work. The bottom of the shaft is a bed of killas, the droppers of copper running into the lodes each side of the shaft, are so general, that our work looks more like that from a lode than the country. On firing our last hole we discovered branches of lead with the copper, which, together with a quantity of peach, prian, and other indications, induces me still to think that we shall have a rich cut when we intersect the lodes. We are about to erect an undershot wheel, to be worked by the Tamar, to keep the water, haul stuff, &c., &c. I saw, in your last week's Journal, that South Maria shares were quoted at 40*s.*; I shall think your informant to be a little more careful in gaining information on this head; I would recommend his applying to the purser, who knows more about the current price of our shares than any other man. I can prove that, instead of 40*s.*, shares were at that time selling at from 3*l.* 10*s.* to 5*l.*; and I think that any unprejudiced judge of mining will, on seeing our prospects, value them in double that sum. Perhaps your informant is some hireling to run down our shares, or belongs to the party that have offered our landholders 1000*l.* to buy the present company out: if so, I beg to inform him, through your Journal, that 5000*l.* will not suffice, as South Wheal Maria Company can, and will, work their own mine; therefore the covetous, if they wish to adventure, must either buy shares at our price (not 40*s.*), or look out for another sett.—J. CHANHALL.

SILVER VALLEY.—March 23.—I beg to say that the tin lode, in the 30 fm. level driving west, is 3 ft. wide, producing some rich work; the lode in the eastern end is 2½ ft. wide, rather disordered, with branches and floors of killas. The lode in the 20 fm. level west is at present small, and poor; at the south shaft we are preparing to fork the water to the 40 fm. level, and have commenced clearing the 30 and 20 fm. levels east. At the 30 fm. level there is a cross-cut driven 7 fms. 2 ft. south, towards a copper lode, which has been driven on in the western hill 36 fms., and will average about 20 in. wide from its bearing there; we expect to have but a short distance to drive to intersect it, which we intend doing as soon as possible. The 10 fm. level is cleared 15 fms. west, and the lode we can see in places between the timber is about 1 ft. wide, composed of peach and flookan; there has been but little done in the eastern level since last report—there being heavy runs of stuff in the western level, it has kept all the men employed there. The shaft at Wheal Sisters, on the course of the silver lode, is sunk 3 fms.; the lode is 1 ft. 6 in. wide, composed of gossan, spar, peach, and flookan.—S. RICHARDS.

TAVY CONSOLS.—March 23.—The winze is about 5 fms. deep, the lode 2½ ft. wide, composed of spar, peach, mundic and black and yellow ores; the water is not much of an impediment in sinking, as in the regular course of working it is all taken up with the broken stuff, therefore when working we have no water to draw. The ground is much stiffer than it was, costing at present 5*l.* 10*s.* per fathom. The adit end is driven about 10 fms., 5 fms. through a large "orey lode" the other 5 fms. rather poor, although large. The end is now driving at 5*l.* per fm.; the leader part of the lode is about 8 in. wide, composed of peach, mundic, and ore; the coarse part of the lode is about 3 ft. wide.—B. COOKE.

TINCROFT.—March 23.—I regret to say, that our progress is rather slow at present; sinking below the 90 fm. level, the ground being hard—a kind of iron stone. The lode in the 90 east is 4 ft. wide, producing some good quality ore, and very promising; the same level west, on south lode, is unproductive; the 90 west, on north lode, is producing good quality ore, improving latterly. The lode in the 80 east is 4 ft. wide, orey, but not rich; the lode in the 80 west is 2½ ft. wide, worth 16*l.* per fm. The 70, 60, and 50 ends are producing tinstuff; other places continue much the same as for some time past. At Palmer's, the 60 and 70, west on East Pool, are producing some ore, and very kindly—the pitches in back and bottom of the 60 fm. level are yielding fair quality work. The stopes in the bottom of the 152, on Highburrow lode, are looking well, at present worth 50*l.* per fm. The lode in the 142 fm. level end east is 4 ft. wide, worth 30*l.* per fm.; the west end, in the same level, is unproductive. The 120 east is worth 15*l.* per fm. The 110 east is worth 20*l.* per fm. Our tin pitches are producing fair quality tinstuff. Our new western shaft, to go down on East Pool lode, is 5 fm. deep, ground favourable. We shall commence at once to get out a plan for engine-house at Wheal Providence, to work on the Druid lode.—W. PAUL.

TRELEIGH.—March 21.—At Christoe shaft, below the 90 fm. level, we are sinking in the country; we hope next month this will be sunk to a 100 fm. level. In the the 90 fm. level, east of Christoe shaft, the lode is about 4 ft. wide, rather improved the last few days, worth 25*l.* per fm.; in the 90 fm. level, west of ditto, the lode is 1 ft. wide, not much ore. At Garden's shaft, below the 80 fm. level, no lode taken down this week; we shall commence taking it down on Wednesday next—it is looking well. At Good Fortune shaft, below the 70 fm. level, lode large, but not much ore—about 5 ft. more to sink it to the 80 fm. level. In the 70 fm. level, west of ditto, lode from 3 ft. to 4 ft. wide, producing stones of ore and very kindly. In the 60 fm. level, west of Symons's shaft, lode 18 in. wide, producing stones of ore, but not much to value. The 50 fm. level cross-cut north is driving in stiff killas, or rather mixed with capel. In the rise, above the 50 fm. level west, the lode is small, and very little ore—this will be holed, it is likely, on Monday next. In the winze, below the 44 fm. level, the lode is small, no mineral. In the rise above the 20 fm. west, the lode is about 20 in. wide, unproductive. In the winze, below the adit, the lode is 1 ft. wide, but little ore.—W. SYMONS.

UNITED HILLS.—March 24.—In Williams's shaft the lode still continues 2 ft. wide, good ore. In the 80 fm. level the lode is 4 ft. wide, producing ore throughout, of average quality. In the 70 fm. level, east of eastern shaft, we are still driving south to cut the south part of the lode, which we expect to do shortly. West of diagonal shaft the lode is 4 ft. wide, poor. West of James's shaft the lode is 3 ft. wide, producing some stones of ore, but not rich. In the diagonal shaft we are getting on favourably at present. In the 60 fm. level, eastern end, the lode is 2½ ft. wide, ore of fair quality, improved since last reported. West of Harper's winze the lode is 2 ft. wide, 1 ft. on the north part ore of average quality; in the stopes, east of Harper's winze, the lode is 3 ft. wide, good ore. In the stopes, west of James's shaft, the lode is 5 ft. wide, 3 ft. ore of average quality. In the cross-cut at the 50 fm. level the ground still continues favourable for driving. At Wheal Sparrow, no lode broken for the past week. In the rise, in the 40 fm. level, the lode is 2 ft. wide, 1 ft. ore of fair quality. West of Richards's the lode is 18 in. wide, ore of low quality. In the 30 fm. level the lode is 2 ft. wide, producing ore throughout, of a coarse quality.—THOMAS TREVENEN. ROBERT WILLIAMS.

WEST SHEPHERD.—March 24.—Our mine is still looking very favourable. The west end, at the 12 fm. level, is very kindly—it being in a state of great improvement, and bidding fair to throw up large quantities of lead; we have at present in the lode a leader with lead from 3 to 5 or 6 inches wide, and gradually enlarging as we go forward; the lode averages about 2 feet wide. We have nearly got down our engine-shaft to the 20 fm. level, and shall soon commence driving to cut the lode. From the appearance of the lode in the bottom of the 12 fm. level, where it is very rich for a considerable extent, we are anticipating much greater improvements in it at the 20 fm. level; and altogether the mine exhibits the most encouraging aspect. We have from 15 to 16 tons of silver lead now on the surface, from 18*l.* to 20*l.* per ton.—D. SKEWES.

WEST WHEAL JEWEL.—March 23.—The ground in the 115 cross-cut is harder than when last reported. No lode taken down in the 100 east or west in the past week. In the rise on the back of the 87 fm. level, on William's cross-course, the ground is very favourable; and also in the winze, sinking below the 70; there are 7 fms. further to rise and sink to hole, which (we hope) will be accomplished by the end of the present month, when we shall be in a position to set four pitches at a moderate tribute. In the 85 cross-cut, the north ground is still favourable for driving. There is nothing done on Tolcarne tin lode at the 12 fm. level, since our last setting, in consequence of a run in Quarry shaft, and the levels being full of stuff; but the shaft is now completed, and we hope in a few days to resume operations. In the 12 fm. level south on little cross course, we have intersected a lode here 1 ft. wide, composed of spar and prian; we are now opening on it east, and we believe it to be a part of Wheal Jewel lode. In Wilkinson's engine-shaft, sinking below the 80 fm. level, the lode is 3 ft. wide, composed of spar and stones of copper. In the deep adit, west on ditto, the lode 8 inches wide, unproductive.—S. LEAN. R. JOHNS.

WHEAL MEXICO.—March 23.—Having lately cut two flookan heads, we infer that the cross-course is not far off, although we have driven 9 ft. beyond the supposed line; in all probability, however, its underlie is more rapid at the 20 fm. than at the adit level. In the deep adit the tributers have lately met with a few stones, carrying a large proportion of native silver, but they are too near the surface to lead us to expect much from the discovery. Underneath will be found Capt. Faull's (captain of Wheal Gill) report of the north lode, who, in consequence of the similarity between the two lodes (as both carry a leader of jack in similar ground), was invited to inspect the mine.—W. KNOTT.

"By your request, I have inspected the north lode at Wheal Mexico; I found that a shaft is sunk on the boundary, 6 fms. to the adit, and a few fathoms driven east, on the course of the lode. For some fathoms from the shaft, the lode is composed chiefly of blende, with some occasional spots of yellow copper ore; but, for the last 3 or 4 fms., a decided improvement in the lode has taken place, and especially in the bottom of the level. The lode varies from the back to the bottom from 10 to 20 in. in width: at this time the lode in the bottom is 20 in. wide—a very promising lode indeed, composed of blende, mundic, and copper ore—of the latter very good saving work.—H. FAULL."

FOREIGN MINES.

ALTEN MINES.—The following is the estimated produce and report for Jan.:

Mines.	No. of men.	Tons ore.	Per cent.	Tons copper
United Mines	8	55	5	2·75
Ralpas	24	70	8	5·60
Mancur's	12	18	7½	1·35
Ryper's	10	10	9½	0·95
Total	54	153		10.65

Mining Report from Jan. 15th, to Feb. 7th, 1846.

Ralpas.—The last discovery in the shallow adit continues good, but on the whole the produce is rather fluctuating; the returns from this working (No. 5 in the list of settings,) consist principally of best dredge, of 16 to 17 per cent., and occasionally prills of 30 to 33 per cent. The deliveries to the smelting-house for January under Nos. 26 and 27, are the produce of this place, and contains about two tons fine copper. The ore in the 10 fm. workings is very confused, and runs almost perpendicularly, instead of horizontally, as heretofore. The produce from the deeper workings near shaft No. 1, which consisted principally of pure copper pyrites, and buntkupfererz in a calcareous matrix, is diminished, and the principal returns are now made from the shallow adit workings, on the gossan lodes, which yield buntkupferers and green carbonate an black oxides of copper, mixed with oxides of iron and manganese; a little earthy cobalt, ferrugineous quartz, flookan, or soft clay, and clay slate, all of which are difficult to smelt—the former being deficient in the quantity of sulphur necessary to produce a perfect subsidence of the metal from the slag, and the latter on account of the infusibility of their component parts. We do not anticipate any decrease in the produce for February.

United Mines.—The ore in one of the stopes is now exhausted; but the men are employed in stoping a piece of ground near shaft A, which promises to yield a small quantity of good ore. The other two stopes in Ward's old workings above the 40, are rather improved; the extent of orey ground is increased, but the quality of the ore is rather low. The tributers at Woodfall's continue to make fair returns; but I fear the stock of ores in the old hulls is nearly exhausted; the operations at this place still leave a fair profit.

Mancur's.—A new level has been set in a caunter lode, near shaft No. 2, which contains some good dredge ore, and holds out the best prospects for improvement. The west stope continues good, but on the north-east side of the shaft the ore is more confined, and the lode less productive. The number of men employed on the latter has been reduced to two—and those on the former increased to six. The stope and sink on the north lode having been driven 5 fms. without any improvement, have, for the present, been suspended. The full compliment of men are still employed at this mine, and we expect the returns for February will be equal to, if not more than, those for last month.

Ryper's—has undergone no change since my last report. The roof stope, set last month to two men, became poor at the end of the month, and its further prosecution was, in consequence, suspended. The same men are now employed on a foot stope, which yields a fair return of ore. The prospects are not, on the whole, materially deteriorated; and, although the ore production this month will probably be less than formerly, we fully expect, from its improved quality, that the returns in copper will not experience any considerable reduction. In consequence of the change in the constituent parts of the Raipas ore, and the proportionate increased production from this mine, it will be necessary to procure a greater quantity of mundiey ore, as a flux for the smelting-house; and, for this purpose, propose a trial on the stope at the old mine, alluded to in my report, No. 2, where we expect it can be broken advantageously.

It is at present our intention to expedite the *Alten* with a full cargo of copper on the 1st March, and hope to forward the bill of lading with the first steamer from Tromsoe, on the 10th proximo. Should the *Alten* have a favourable passage, we hope you will be in possession of the copper before the arrival of our next dispatches.—S. H. THOMAS.

IMPERIAL BRAZILIAN.—The following account of the gold workings has just been received—no report was forwarded from the mines:—

Jan. 13 to 22—Nine working days ..... lb 11 2 1 0

ST. JOHN DEL REY.—*Morro Velho, Jan.* 18.—Average number of stamp heads, working during 18 days—68·3 heads. In the early part of the month the ore supplied was poor, but it has improved within the last two days; this arises, probably, from the circumstance which was to be anticipated, that as all the dead works were already fully manned, the only ground remaining for an accession of force are the stopes. In February, we shall be better able to see what the monthly produce is likely to regulate. In the mine, the useful works are being pushed with a vigour which I am sure will prove satisfactory to you, and, with the addition of the full second half of the Cata Branca blacks, you will have out the full value of the United and Gamba Mines.

[FROM CORRESPONDENTS.]

CHIANTLA MINING COMPANY.—A very influential company, under the patronage of the President of the State, and the protection of the Government of Guatemala, has been formed, for the purpose of exploring and working the mineral ground near the town of Chiantla, in Central America. The mines are stated to be situate in a temperate and healthy climate, within the territorial limits of Guatemala, and near the borders of the Mexican Republic, and are approached by good mule roads from Chiapan—the nearest shipping place on the Pacific coast—and from Ysabal, in the Gulf of Dulce, on the Atlantic; the distance being about 100 miles from Chiantla to Chiapan, and 250 to Ysabal, and through which port all correspondence with this country is sent. The district is stated to be traversed by a vast number of metallic veins and deposits, especially in the neighbourhood of Chiantla; and it appears that, for a considerable period, the people of the country have made shallow workings to a great extent—raising lead ores and smelting them, by a process rude and peculiar to themselves. It has been recently ascertained, that these lead ores are rich in silver; and, to realise the full value for the ores, will be the chief aim of the present company's operations. The people of the country are, it appears, not possessed with the knowledge of separating the silver, and the lead only has been the source of remuneration to them. The price obtained at Chiantla is 5*l.* per ton, and the carriage to the shipping port, on the Pacific, brings it up to 12*l.* 10*s.* per ton—a rate too high, probably, to pay for bringing it to Europe with profit, unless enriched with silver; although it leaves handsome profits to them in the Chinese or Indian markets. The mines are of many leagues in extent. The expectation which the directors entertain of large profits, is based upon the following considerations:—1. The mines are very shallow, and are worked by simple means, and at a moderate cost.—2. Samples brought home, and assayed here, exhibit a great variety of produce, both for lead and silver; they have an appearance such as miners generally approve—partly as they are rich in metal, and partly as they prove the existence of veins of a very powerful character.—3. Some of the ores yield a very large proportion of silver, as appears by the following analysis of samples tried:—

No. 2....	8	tons in	20	for lead, and	16	oz. of silver per ton of pig-lead.	
4....	4	,,	20	,,	18½	,,	,, ,,
5....	6½	,,	20	,,	18	,,	,, ,,
7....	4½	,,	20	,,	72½	,,	,, ,,
44....	10½	,,	20	,,	70	,,	,, ,,
45....	10½	,,	20	,,	709	,,	,, ,,
46....	4½	,,	20	,,	18½	,,	,, ,,

Five samples of gossan ores, containing carbonates of lead, on assaying, have produced—

No. 1 A ..	16	per cent. of lead, and	56	oz. of silver per ton of lead.		
2....	40	,,	,,	30	,,	,, ,,
3....	42½	,,	,,	54	,,	,, ,,
1 B ..	50	,,	,,	18	,,	,, ,,
3....	45	,,	,,	18	,,	,, ,,

—4. Recent improvements in the extraction of silver from lead, and in the processes of concentrating the purer into a smaller bulk of the baser metal by very simple means, and at a low rate of cost, render it probable that large quantities can be brought to Europe in this concentrated state, so as to be highly remunerative, even at dear rates of land, transport, and freight; and, lastly, the country in which the mines are situated, appears to be abundantly supplied with timber, water-power, and cheap labour—all essential to a favourable result. The right to work the mines is derived from the original proprietors, who have acquired them by decree, or grant, from the President of the State—the proprietors having previously fulfilled all the requisite legal formalities; and the documents are officially certified by the British Vice-Consul; the Government not only guarantees protection, but offers assistance to the enterprise—whilst no dues, or royalty, of any kind are payable. The adventure is divided into 5000 shares, and to have a capital of 50,000*l.*—limiting the amount of 10*l.* per share by a clause to that effect in the deed of the company. A deposit of 12*s.* 6*d.* per share is in course of payment on 3750 shares, which will command 2343*l.* 15*s.*, and enable the directors to send a party of experienced miners and assayers out to ascertain the correctness of the statements furnished, and discharge all preliminary expenses; and, in the event of the abandonment of the project, the mines will revert to the original proprietors, and the liability of the shareholders of the present company will cease,—the projectors reserving one-quarter, or 1250 paid-up shares, as a remuneration for their service in bringing the same forward.

BUCKETT'S MINE.—The 32 fm. level end east is improved—lode 3 ft. wide; the ground in the 43 fm. level cross-cut is better, and the lode will be cut in about two months from this time.

BUDWICK CONSOLS.—They have lately cut into a rich bunch of tin at the 40 fm. level, in this mine.

CONDURROW MINE.—The Landowner lode, lately cut at the adit level, has turned out 10 tons of ore in 9 ft. of ground—averaging 30*l.* per fm., and continues to look as well as ever. From the locality and promising character of the lodes, this mine is likely, with a little more outlay, to become most productive. A meeting is called for the 7th proximo.

EAST WHEAL KITTY MINE (Saint Agnes).—The copper lode in the adit level, driving east, is improving in appearance, and occasionally very "keenly" stones of ore are met with. Several miners have expressed favourable opinions of the sett generally, and have no doubt but that the lodes, near the "caunter" eastward, will assume most favourable prospects.

EAST CARADON MINE.—The lode in the adit level (being a continuation of the South Caradon main lode) has produced good stones of ore during the past week.

GEORGE AND CHARLOTTE—are looking exceedingly well; they have a lode of 18 in. of solid ore, out of a lode 2½ ft. big; this has raised the shares much.

NORTH WHEAL LEISURE (Perranzabuloe).—This mine is looking well; the tin lode in the adit, going east, has not appeared for some time more promising.

PERRAN ST. GEORGE UNITED MINES.—We hear that a very valuable copper lode has been cut at the 10 fm. level, near Tregoning's shaft, and that there is every appearance of its continuing. The lode in the new shaft, at Cleggar, under the adit level, assumes a most favourable appearance, and the prospects are of the most cheering kind.

ST. AUSTELL CONSOLS.—The mine is progressing very satisfactorily—the lode has now been proved to be from 6 to 7 fms. wide, for 40 fms. in length, and throughout composed of copper, mundic, and prian—although not rich enough to save, but in some places producing rich "squats" of ore. What a deeper level will develope, of course, time must prove.

SOUTH HARVANNAH MINE (Alternun, Cornwall).—This mine, which has hitherto been divided into 256 shares, has, by a resolution made at a general meeting of the adventurers, held at Liskeard, on the 18th inst., been reduced to 200—this arose from the inability of the captain to pay his calls, his high opinion of it having induced him to hold an interest far too large for his means; he, therefore, very properly consented that 56 of his shares should be forfeited, each other share being made (in consideration of this) chargeable with 5*l.*—this call, which is payable at intervals of a month, will quite relieve the mine of all difficulties, and leave a surplus for prosecuting the workings. This desideratum having been obtained, with other good arrangements, there now appears to be no reason why this mine shall not very soon be added to the dividend paying ones. The tin raised here is of a very superior quality, 60*l.* to 65*l.* per ton being the usual price at which it sells freely—upwards of 300*l.* worth have been sold since Christmas, and a large quantity is still in sight, and the prospects altogether are very cheering indeed.

WHEAL BEAUFORD, OR WEST WHEAL CREBER.—This sett has been recently taken up by Mr. J. H. Hitchens and friends, and is situate between the Bedford United Mines and Creber Mines, in the parish of Tavistock, from both of which mines several thousands of tons of rich copper ore have been raised; the same lodes pass through the extreme length of the sett, one of which has been opened upon the back, and presents a most encouraging aspect. The geological situation of the mine, with the fine appearance of the lode, gives the practical miner a guarantee of copper ore in depth. A shaft is in course of sinking, which will take the lode at a depth of 15 fms. The mine is divided into 512 shares, with the usual dish or dues. It is stated that shares have already realised a high premium.

WHEAL GILL.—The new and old shafts have been communicated to the 40 fm. level; the end east has now a productive lode, 3 ft. wide. At the 16 fm. level east, when 9 ft. from the cross-course, a leader of ore, 5 in. wide, was met with, and has continued to increase in size on driving the last 4 fms.; the orey part has increased considerably, being now 3 ft. wide, and of good quality, and the south wall has not yet been seen. The ground in the shaft continues very favourable for sinking, in a congenial killas for copper ore. Preparations are in course of making for dressing the ore, of which many tons are on the floors.

MINING NEAR TAVISTOCK.

[FROM A CORRESPONDENT.]

WHEAL FRANCO.—The levels in this mine never assumed a better appearance, and the dressing-floors are covered with ore. The general parcel now ready for sale gives a produce of 7½, whilst the tributers' parcels are worth 9.

WHEAL ELIZABETH (formerly Wheal Crease).—In sinking the shaft a very promising lode was discovered, composed principally of gossan, thickly impregnated with spots of copper ore; from its proximity to Wheal Maria, it is fully anticipated that this sett will become of great importance.

CREBER CONSOLS.—This mine is two miles from Tavistock, and about the same distance from Gunnis Lake Mine. There are two cross-courses in the mine, and the one was found in abundance near them, being worth from 9*l.* to 11*l.* per ton. The bottom of the mine, it appears, is full of block mundic, under which, it is very likely more copper will be found. At present they are driving to cut a side lode, which carries very fine stones of copper in a shallower level. They turn an incline shaft for drawing up the work; the water is easy, and the ground very favourable.

WHEAL CONCORD.—The engine is not yet ready—still the work is progressing very satisfactorily. The lode is highly stained with "greens" in the bottom levels, and there is every probability of much lead in the stulls and levels, whilst the cross-course, it is expected, carries a good deal of lead; but, from the softness of the ground, it is feared that several runs have taken place.

WHEAL ASH.—A considerable improvement has taken place here within the last few days; on cutting through the cross-course, they have found the lode to contain large stones of grey ore, and the cross-course continues good for lead. This discovery has created a demand for these shares at a much higher premium.

LAMERHOOE WHEAL MARIA.—During the past week they have intersected another promising lode, underlaying south, which is composed of beautiful gossan; it is about 25 fms. north of the lode, marked H in the map of the mine.

HARROWBARROW OLD MINING COMPANY.—At a meeting of the adventurers, held at Plymouth, on the 14th inst.—EDWARD PRIOR, Esq., in the chair,—the accounts, showing a balance against the mine of 6*l.* 2*s.* 11*d.*, were examined and allowed; and the following report was presented:—"The committee have at length the pleasure of congratulating their co-adventurers on the setting to work of the steam-engine, which took place on Monday last, the 9th inst., in the presence of a large body of the shareholders; since which the water has been forked to within 5 fms. of the bottom of the shaft, waiting the dropping of another lift of pumps, which will be completed this day, and the mine entirely in fork on Monday. The shaft, as far as it has been seen, is in perfect order. Since the last general meeting, the grant from the Duchy has been completed, and in it is comprised the Wheal Goodluck tin lode, on the north part of the sett. From the reports of different mining agents, your committee are inclined to think very highly of this lode, and consider it is a most valuable addition to the sett. The deep adit has been driven up to it, and has cut the lode at a depth of 40 fms. from surface. At this place some men have been put to work, and have brought to grass a pile of very good work. A shallow adit also has been driven on the course of the lode, above which it is entirely taken away. This will leave us 20 fms. of dry backs. The committee strongly recommend at once commencing operations on this lode, either by opening an old shaft, or sinking another in any other more convenient situation; and this, they think, may be advantageously done, in conjunction with the working of the silver and copper lodes. The committee have examined the purser's accounts to the end of January, which show an expenditure, from the last general meeting, of 809*l.* 7*s.* 3*d.*, and declare them correct."

LAMERHOOE WHEAL MARIA.—A general meeting of shareholders will be held at the office of the secretary on Thursday, 16th of April, when a report will be presented by the finance committee, and a call proposed for the payment of the engine, and other necessary expenses attendant on the active prosecution of the mine. We are glad to find that the committee have thus determined on convening a general meeting of the shareholders; for we feel assured, that the first and only step necessary to insure confidence, is freedom of communication. The shareholders will thus have an opportunity, not only of entering on the subject of their financial relations, but also acquire a general knowledge of their affairs.

NEW EAST CROWNDALE MINING COMPANY.—At a meeting of adventurers, held at Bedford Hotel, Tavistock, on 17th March,—Capt. ISAAC TOBY, R.M., in the chair,—the accounts, having been examined and found correct, were passed. It was resolved—that the call, made at the last meeting, of 10s. per share, be paid immediately;—that the mine be divided into 256 shares, and that Capt. Carpenter be authorised to treat with any company for 128 shares. It was proposed by Mr. J. E. MARE, seconded by Mr. R. ROBINS, and carried, that the following report from Capt. James Carpenter, be adopted:—"Having driven the 14 fm. level so far east as to ascertain the size and regularity of the lode under the east shaft, as alluded to in my report of the 27th January last, I beg to observe that it is equally large and promising, as I expected, at that depth. The lode is 4 ft. wide, with regular walls, composed of mundic, spar, and white prian, indicative of making copper at deeper levels. We have not been able to prosecute the 24 fm. level very far, in consequence of the great influx of water (I presume) from a large lode to the east of the present end, and also the inefficiency of power to keep it clear. The lode appeared to be improving at the 24, producing some stones and spots of copper ore, with an abundance of mundic; and I have very little doubt of its productiveness of copper, if it could be sunk on to about 40 fms. in depth, as this lode, where worked on, generally proved most productive at that depth."

SOUTH ST. GEORGE MINE.—It was erroneously announced, in last week's Journal, that the meeting of this company, on Tuesday last, was for the purpose "of deciding whether the further prosecution of the undertaking should take place, or otherwise." It appears that we were wrongly informed: the meeting was for the purpose "of auditing the accounts for January and February; and also to decide on the future prosecution of the mine." We have not yet received the particulars, but they will appear in our next Journal.

TREVISKEY AND BARRIER MINING COMPANY.—At the two-monthly account of the mines, these following statement for Dec. and Jan. was presented:—

Treviskey.—By amount of ore sold, Nov. 27 (less 125*l.* 18*s.* 6*d.*, 1-12th, lords' dues), 1385*l.* 3*s.* 11*d.*; received for materials charged Treviskey, Dec. and Jan., 51*l.* 11*s.* 7*d.*; ditto Barrier, 2*l.* 1*s.* 1*l.*; sundries, 2*l.* 2*s.* 2*d.*: 55*l.* 15*s.* 8*d.*—making 1440*l.* 19*s.* 7*d.* Deduct labour cost, &c., Dec. and Jan., 366*l.* 17*s.* 9*d.*; 11-12ths Treviskey cost, 301*l.* 15*s.*; Tresavean engine cost, 148*l.* 9*s.* 5*d.*; merchants' bills, 68*l.* 10*s.* 10*d.*, together 885*l.* 18*s.*—leaving profit 555*l.* 6*s.* 7*d.*; add Nov. balance of 95*l.* 12*s.* 6*d.*, makes 650*l.* 19*s.* 1*d.*, from which deduct dividend, 5*l.* per share (600*l.*), declared March 16, leaves 50*l.* 19*s.* 1*d.* now in hand.—*Report.*—The 224 fm. level is driven 26 fms. into this sett; the lode in the end is 18 in. big, and producing a little ore. The 212 fm. level is in killas; the lode in this end is 1 ft. big, with a little ore. The 200 fm. level is also in killas, and is unproductive. The shaft is communicated to the 224 fm. level, and will be completed so as to enable us to commence drawing about the end of the present month. We shall raise from tutwork and tribute sufficient ore to leave a profit of about 300*l.* for the next two months.

Barrier.—Ores sold, November 27 (less 12*l.* 10*s.* 8*d.*, 1-14th, lords' dues), 162*l.* 13*s.* 8*d.* Deduct labour cost, Dec. and Jan., 86*l.* 13*s.* 11*d.*; 1-12th Treviskey cost, 27*l.* 8*s.* 7*d.*; merchants' bills, &c., 13*l.* 12*s.* 10*d.*; Tresavean engine cost, 13*l.* 12*s.* 1*d.*, together 141*l.* 7*s.* 5*d.*—showing profit of 21*l.* 12*s.* 8*d.*; which, with 166*l.* 16*s.* 4*d.* (Nov. balance), leaves now in hand 188*l.* 8*s.* 7*d.*—*Report.*—The winze in the 224 fm. level is communicated to the 236 fm. level. The 236 fm. level is driven east of this winze 2½ fms., the lode in this end is worth 35*l.* per fm. From this end and the stopes in the bottom of the 224 fm. level we expect to raise sufficient ore to leave a profit of about 300*l.* for the next 2 months.

SOUTTON CONSOLS MINING COMPANY.—At a general meeting of adventurers, held at the Globe Hotel, Plymouth, on the 11th inst. (J. J. WILLAN, Esq., in the chair), it was resolved,—That the accounts, having been audited, be passed; also, that the meeting be adjourned to Wednesday, the 25th inst., then to decide on the erection of a water-wheel, and the best mode of prosecuting the mine; and, that the purser write all defaulting shareholders, informing them, that, unless their calls be paid previous to the adjourned meeting, their shares will be forfeited.

WHEAL ANDERTON MINING COMPANY.—At a meeting of the adventurers, held ot the Bedford Hotel, on the 17th inst.,—JOHN PAULL, Esq., in the chair,—the accounts, having been examined and found correct, were passed; a call of 1*l.* per share made; and the following report from Capt. James Carpenter, on the present state and prospects of the mine, read and adopted:—"Since our last meeting, we have completed the sinking of the engine-shaft to the 50 fm. level, driven the cross-cut 13 ft., and cut the north wall of a large capel that runs nearly parallel with the copper and tin lodes. The copper lode having been intersected first, which is 3 ft. wide, impregnated with copper and mundic, in a beautiful strata of ground, and the lode composed of a soft spar. The tin course about 18 in. wide, running parallel with the copper lode, walls adjoining each other, produces some good tin work, much better than I anticipated seeing before we extend the level some 12 or 14 fms., to be under where we met with the best part of the tin lode in the 40; when there, I have not the slightest doubt of its turning out well—more especially, from seeing such improvement in the lode to the 50, to what it was from the 30 to the 40, directly over this part. The copper in the 60 fm. level appears to be nearing the shaft in depth, as the slide also inclines east going down: it is certainly a very good lode, and improves every foot sunk on it; the lode has increased in size, from 8 to 16 in. in width, from 3 fms. above the 40 fm. level, to 1 fm. below. A better quality yellow copper ore has not been discovered in this neighbourhood—rocks 2 cwt. in each. The object I have in view, is to press on the 50 fm. level under this part, to prove the result; as I fear we shall not be able to sink on the lode under the 40, before we intersect a slide to let down the water, as the ground is soft, and would be expensive; whereby, in rising and stoping the back of the 50, the ground would be supported by the attle, or deads, broken in desuing the lode. I have not a very strong opinion of the lode producing much tin to the west of the slide, as the branches of ore seen in the 30 level appear to have left the tin course, and forming a junction with the copper lode, recently cut, within 8 ft. of the tin lode, which is, in my opinion, no more nor less than a strong capel passing through the country, a sort of guide for the copper lodes. Having cut south 5 fms. to the west of the copper ore discovered in the 40, we have intersected a lode, 3 ft. wide; it is the same that was by the side of the capel, at the 30, that produced good stones of copper and lead; I think it is almost adjoining the lode that produces the copper. This will be proved shortly; and it is evident these lodes will form a junction at or before they get to the 50 fm. level, now driving west, to ascertain the result."

WHEAL ANDREW AND NANGILES MINING COMPANY.—At a numerous meeting of the adventurers, held at the mine on the 16th inst., the accounts to the end of February (which were published in last week's Journal,) having been examined, it was resolved, that they be allowed, and that a deposit of 50*s.* per share be at once paid to the purser, for liquidating the present debt, and prosecuting the mine. On the motion of R. B. FOX, Esq., seconded by J. HARVEY, Esq., it was unanimously resolved,—That an increase of six head of stamping power be at once added to the present. The following report from the agents was read to the meeting:—Since the last meeting of the adventurers the sump shaft has been sunk about 8 ft., ground hard, wet, and troublesome to sink, some time having been lost by being obliged to repair the boiler. The men are now getting on without any hindrance, and hope soon to get through the hard bar of ground. The 80 cross-cut south, driven 3 fm., ground hard. The 80 fm. level west, driven about 7 fms., lode for the east 3 fms. disordered. The 80 east, driven about 7 fms., lode 4 ft. wide, composed of spar, mundic, peach, and ore, and of a very promising appearance. The 70 east, driven about 9 fms., for some part of that distance, the lode produced upwards of 2 tons good ore per fathom; it was then disordered by a slide, which continued about 2 fms., and is now disappeared; the lode is 4 ft. wide, producing upwards of one ton of ore per fathom, and from its appearance have reason to expect it much better soon. The 70 west, has been driven about 4 fms., lode 3 ft. wide, producing 2 tons of good ore per fathom. The 70 east on south lode, driven about 2 fms.; this end is now suspended, and a winze is sinking in the bottom of the level towards the 80 (the 80 end being behind the winze about 12 fms.); the winze is down about 2 fms., lode large, and of a very kindly appearance, producing near two tons of good ore per fathom. A winze sinking at the 70 east of shaft, down about 3 fms., lode large, producing good ore. Dunstan's shaft is communicated to the 36 in Dublis lode; during the time occupied in making the communication, the 36 end was suspended, but is now in full course of working; the lode is very large, all of it saving work for tin. The 18 fm. level has been driven west in Dublis lode about 10 fms., lode 3 ft. wide, having good tribute ground—this level also communicated to Dunstan's shaft, and have cut the plat. The stamps is now in full course of working, and after the erection of another burning-house (which we hope to accomplish in a very short time), we shall be enabled to send large quantities of tin to the smelting-house. The cost for the last two months has been greatly increased by the erections at surface, and the quantity of tin returned has not been so much as it would have been had we not ceased working on the lode, during the time Dunstan's shaft was communicating to the 36 fm. level. The pitches are looking favourable.

R. JOHNS. W. ROWE. T. NINNISS.

MOCAUBAS AND COCAES UNITED MINES.

SIR,—I am induced, through your Journal, to seek some information in reference to the position of a very large class of shareholders in the Mocaubas and Cocaes United Mines—from which mines there is now, it appears, some hopes of success. In 1840 there was an issue of 12*l.* shares; the holders of the original shares of 25*l.* each being required to take one of 12*l.* for every five original shares—and, by such adoption, have the original shares stamped. I was not aware of such a resolution, and was too late to avail myself of it, when I applied at the office of the association—and am, therefore, in the position of an "unstamped shareholder." Will you be pleased to acquaint myself and others in what situation we now stand; and whether we shall be entitled to share in any present benefit which may result. A CONSTANT READER.

Crosby Hall Institution, Bishopsgate-street, March 23.

MINING REPORTS—ADDITIONAL INFORMATION REQUIRED.

SIR,—It is very desirable to those interested in the various mining speculations—whose stock-list appears weekly in your Journal—that the promoters would give the public a little more information from the scene of operations, in the shape of monthly, or even two monthly, statements of the quantity of ore sold—profit or loss, and general prospects—than is at present comprehended in the captains' weekly reports, which are perfectly unintelligible to any but those conversant with mining details. Such information would satisfactorily account for the rise or fall in shares, and tend to promote legitimate mining enterprise, without in the slightest degree injuring the character of any *bonâ fide* concerns. These remarks are more especially directed to those speculations which are not yet paying any profit.—ARGUS: *Cornhill, March 24.*

MINE ACCIDENTS.

Wheal Maria Mine.—A melancholy accident occurred here on Tuesday, the 24th, which resulted in the death of two miners, named Lucas and Down, and the serious injury of two others—father and son, named Williams. It appears that the men were engaged in timbering a level, and, as they proceeded in their work, they did not exercise sufficient precaution by securing the ground which they had passed, when the level fell in, and occasioned this melancholy loss of life. Lucas has left a wife and three children, whilst Down was unmarried.

Cyfarthfa Collieries, Merthyr.—As Rees Hopkins was descending in a tram to one of the pits, with three mandrels under his arm, unfortunately, when within 6 ft. of the bottom, he jumped out, and one of the mandrels penetrated his neck 2 in., and within half an inch of the carotid artery!

Beerhaven Mines, Ireland.—As R. Seymour was tumbering up a shaft, some part of the work gave way, and he was precipitated 40 fms., and killed.

Monmouth.—J. Davis was injured by a fall of earth in Skenfrith Quarry.

Denby Hall Colliery, Horseley-heath.—J. Hatfield and S. Timmins were killed by a fall of coal—a companion (J. Bailey) had a very narrow escape.

Five Ways, Rowley Regis.—J. Jones (aged nine years) was killed by a fall of coal in Mr. Darby's Colliery—another boy was injured, but is likely to recover.

Broughton Quarry, Cockermouth.—J. Henderson was killed by a fall of stone.

Fulshiewood Colliery, Oswald.—An explosion of fire damp took place in this pit, fortunately unattended with any very serious results; it was occasioned by one of the miners raising himself up, when the flame of the lamp in his bonnet came in contact with the gas, which instantly exploded.

OPENING OF THE CYFARTHFA NEW MILL.—This mill, the foundation of which was laid in Feb., 1843, and completed for opening a few days since, covers 34,800 superficial feet, having 20 puddling furnaces and forge, 10 balling furnaces, with the mill, and other requisite machinery, and worked by a low-pressure steam-engine, of 240-horse power: the roofing is not less than 312 squares, of 100 ft. each. When all was ready, the vast machine was set in motion, and some rails rolled, to the perfect satisfaction of the worthy owner and a numerous party of friends, who had assembled to witness and celebrate the event.

COPPER MINES IN CANADA.—The copper trade, and our locality especially, will be gratified to learn, by the following intelligence, that Canada possesses mineral wealth as well as agricultural resources:—"Some of the British officers in Canada have lately made an important discovery of some of the richest copper mines in the world. This discovery has created great excitement. Some of the officers, *en route* to England, will carry with them specimens of the ore; and, among them, one piece weighing 2200 lbs. The ore is very rich, yielding, as we learn, 72 per cent. of pure copper. Part of the copper was taken from the bed of a river, and some broken off from a cliff on the banks. The latter is six feet long, four broad, and six inches thick."—*Cambrian.*

WHEAL TRELAWNEY AND WHEAL MARY ANN MINES.

ROLLS' COURT, MARCH 25-6.

SMITH *v.* LYNE.—In 1842, a company of adventurers, engaged in a mining speculation, near the village of Menheniot, in Cornwall, they commenced working the Wheal Trelawney Lead Mine, and took two setts—one from Mr. Trelawney, and the other from Mr. Carthew; and they divided the speculation into 128 shares, and appointed Mr. Peter Clymo (the purser), agent, manager, or captain, of the concern. Afterwards, Mr. Clymo advised the company to take a sett from a Mr. Sobey, another landed proprietor, for the purpose of enabling them to take a like sett from Miss Pollard, whose land adjoined. They did so; and, increasing the 128 shares to 130, gave Mr. Sobey two shares in the Trelawney Mine, to induce him to make the sett. The lode bending its course towards Miss Pollard's lands, it was desirable to take a sett from her; but, before the company could do so, Messrs. Peter Clymo, James Clymo, and Edward Lyne, obtained from her a grant of a sett for themselves, in consideration of 1000*l.* paid down, and 250 shares to her sister and nieces; and they sent a circular to the Trelawney Company, offering them shares in the new speculation, which they called the Wheal Mary Ann; the latter, conceiving that Mr. Peter Clymo, both by the custom of the county, and his own representations, made to them at various times, was bound to get the sett for their benefit, and not his own, instituted the present suit, to establish their rights, and now moved for an injunction, to restrain Peter and James Clymo, and Edward Lyne, from assigning the sett, and from assigning the shares in the sett, except those of Miss Pollard's sister and neices, and from doing any acts, matter, or thing, whereby they might forfeit the sett, and that the master should appoint a proper person to take charge of Wheal Mary Ann Mine, &c.—Mr. KINDERSLEY and Mr. TURNER opened the case, and occupied the greater part of the day, and they were followed by Mr. SMALE and Mr. FOLLETT on the following morning. After which, Mr. TEED and Mr. DICKINSON, for Peter Clymo and the other defendants, opposed the motion at great length, and Mr. KINDERSLEY replied. The parties, however, came to an arrangement, that the plaintiffs were to amend their bill, and an order was made for the motion to stand over until the first day of next term; in the meantime, the works to go on for the profits of those who were entitled to them, Miss Pollard waving all forfeiture from that cause, and the parties to communicate, with a view to an arrangement.

THE COPPER TRADE.

The deputation of gentlemen interested in the copper trade, who had the interview with Sir Robert Peel on Saturday, consisted of Lord Sandon, M.P., Mr. Masterman, M.P., Mr. Muntz, M.P., Mr. Thornely, M.P., Mr. Parker, M.P., Sir Howard Douglas, M.P., Mr. Russel Ellice, Mr. Druce, Mr. Budd, Mr. Armstrong, Mr. Brownell, Mr. Hegan, Mr. Rowe, Mr. Muir. Mr. W. R. Lloyd, Mr. Thomas Lloyd, Mr. Masterman, Mr. Templeman, Mr. Gibbs, and Mr. Leckey.

The present state of the export trade of copper ores from Chili and Cuba was detailed at length by Mr. BROWNELL, and the disadvantages suffered by the restrictions on imports to the smelters in this country clearly explained; the necessity of obtaining a good supply of the superior ores of South America, and the disadvantageous competition they found from new establishments in the United States, who obtained their raw material unencumbered with the impost chargeable in this country, were urged by Mr. Vivian and Mr. Keates.

Sir R. PEEL replied, that the revenue derived from these ores was upwards of 65,000*l.*; and that though the imports from Chili had fallen off, the quantity from Cuba had increased.

Mr. MASTERMAN stated his belief that this source of revenue would soon entirely decline.

Mr. MUNTZ pleaded for his Birmingham constituents, that they considered it a great hardship that the principle of the late reduction on import was not consistently carried out in this instance; and they had cause to complain that, while foreign manufactured articles of brass and copper were to be admitted at a reduced rate, the raw material was still to be burdened with a heavy duty. He produced some specimens of superior copper, obtained from Chilian and other ores, and referred to a former interview with the Premier, when he had entered into further details.

Mr. PARKER said, that the Sheffield manufacturers were affected by it in competition with foreign manufacturers.

Mr. W. R. LLOYD produced a specimen of Belgian brass ware, and confirmed the remarks about competing manufacturers. He stated that as many as 30 mechanics, earning from 18*s.* to 30*s.* per week, employed in the brass foundry trade, had lately been engaged in Birmingham, by agents from New York, at the rate of nine dollars per week, with a free passage for themselves and families, and secured provision for a certain period; that this was a question deeply interesting to the manufacturers and merchants, as well as the consideration of having such desirable produce as returns from countries whither we exported a large quantity of manufactured goods. That Birmingham merchants had often felt the inconvenience lately of having remittances from Cuba, by bills on New York, and other circuitous routes, all so much to the prejudice of their profits on their shipments. That the inconsistent imposition on the raw material, while the duty was to be reduced on foreign manufactured articles, might be compared to the policy of admitting French bread at a reduced rate, while a heavy tax continued on corn from the continent. He begged to read the following petition from the Birmingham manufacturers, which had been presented in Parliament, affecting the interests of a large population:—

THE PETITION OF THE MERCHANTS AND MANUFACTURERS OF BIRMINGHAM

HUMBLY SHOWETH,—That the manufacturers of Birmingham, and its neighbourhood, consume annually upwards of 5000 tons of fine copper, in the working-up of which, and in the composition of brass in the greatest variety of forms, for home and foreign use, a very large proportion of the population is employed.

That the export of goods, of which copper forms a material part, is upwards of 12,000 tons from this town.

That it is an increasing trade, from the extent and variety of the articles now produced from this material.

That it is of the utmost importance that such a supply of copper be obtained at the cheapest rate, seeing that the manufactured goods have to compete with those of all other countries.

That a steady and moderate price can only be ensured by allowing the importation of the raw ores into this country duty free, in accordance with the principles recently advanced by her Majesty's Government.

That copper has within the last 12 months advanced in price from 10 to 12 per cent., and your memorialists are much disappointed that, in the recent statement made by Government, to Parliament, copper ore is not included in the list of articles, the duty on which it is proposed to abolish, being persuaded that if it is retained the ores will be smelted elsewhere, and that foreign consumers of copper and brass will obtain a supply of metal of the best quality on better terms than your memorialists.

That the abolition of the duty is also the more necessary, seeing that it is proposed to reduce the duty on foreign copper and brass manufactures.

Mr. THOMAS LLOYD said, that having recently visited the Island of Cuba, he had seen shipments of copper ore at the Havanna, making for the United States, which, but for the restrictive duty, would have been sent to this country; and that while this impost lasted, injury was sustained by merchants in the way of disadvantageous returns to a serious extent, by the Americans and other foreigners smelting these ores and supplying the copper and manufactured goods, in markets which we had hitherto enjoyed.

Other gentlemen explained the danger of forcing into existence, unnaturally, a trade, which, however we might afterwards regret, and endeavour to reverse our restrictive measures, would thus have obtained a footing abroad, and ultimately superseded us in one of the most important branches of national industry.

Sir R. PEEL did not give any assurance of relief, but appeared to pay great attention to all that was brought before him.

INDIAN COBALT.—A new field of cobalt has been discovered in the East Indies, in the mountainous country of Rajpootanah—a district already celebrated for its mineral wealth, and principally for its coppers in the state of sulphur and sulphate, and its alums. It is in one of the copper mines that this cobalt is found—lying abundantly in the state of sulphur of great purity. It is accompanied by only one other substance—pyrites of iron, highly magnetic, and easily separated from it by a loadstone of moderate power. These it contains in the proportion of 9·22 per cent. The remainder of the mineral consists wholly of pyrites of cobalt, of the specific weight of 5·45, and composition following:—Cobalt, 64·64; sulphur, 35·36. The Indian jewellers already use it advantageously for colouring gold with a rose tint of great delicacy.—*Athenæum.*

ROLLING MILLS MAKING RAILROAD IRON IN THE UNITED STATES.—New York and Maryland Iron and Coal Co., Mount Savage, near Cumberland, Maryland. Wm. Young, president, Jennon's Run, Allegheny County, Maryland.—Montour Iron Company, Danville, Pennsylvania. Leavitt, Murdock, and Co., New York, agents.—New Jersey Iron Company, Trenton, New Jersey. Peter Cooper, New York, proprietor.—New England Iron Company, Providence, R. I.—There are several other mills, but we have not sufficient information to insert them.—*American Railroad Journal.*

MAKING RAILROAD IRON IN TRENTON.—Mr. Cooper is fitting up his extensive iron-works at Trenton, for the purpose of rolling rails. Iron founders and machinists are all busily employed in getting the requisite machinery ready, and the mill will be in operation by the 1st of May. A contract has already been made with the Camden and Amboy Company for 2000 tons, and propositions have been made from other companies. It is expected that the works will produce 30 tons daily—which will require daily 40 tons of pig-iron and 45 of coal, which, added to the 10 or 15 tons of merchant iron which the works now produce, will make more than 100 tons per day, which must be brought to the place. About 100 additional hands will be employed. We are well pleased to find the above notice in the papers. We are sure that the quantity specified will be exceeded, rather than diminished, in the hands of the gentleman named—we never knew him to fall short of his promises.—*Ibid.*

The Glasgow papers describe an iron market-house for Honduras, that has just been completed by Messrs. Edington, of Glasgow. It "measures 108 feet long and 60 feet wide, and is surrounded by a colonnade or verandah 12 feet wide, supported by handsome fluted columns. The interior or main building contains numerous stalls for the sale of the various market commodities, and is ventilated by means of jalousie blades, fixed in the manner of Venetian blinds. There is besides a ventilator on the top, that nothing may be wanting to encourage a delicious coolness in the hot climate for which it is intended."

OBSERVATIONS ON HOME MINING.

[FROM A CORRESPONDENT.]

It is a long time since a more just occasion has presented itself of congratulating parties interested in Cornwall, and in the mining west of England, on the wide and well defined improvement in the staple branch of their industry—namely, in the mining interests. In London, the great commercial pass word has long been "Ships, Colonies, and Commerce;" and as these have increased lighting up the fires of wealth and civilisation on every shore, the saying has deepened into a sentiment, and the festive toast has been but the index of that vigour and success which has accompanied and crowned our mercantile operations. In Cornwall, time out of mind, "Fish, Tin, and Copper," have been words signifying the sources of wealth, peculiar to the district; and it is not in the exercise of any prophetical vocation, or seer-like conceit, that we forecast for this country a far greater growth of its material prosperity, than any yet arrived at, from these same productive sources. The statements which have appeared in the columns of the *Mining Journal* from week to week, afford a sufficiently clear demonstration of the unabated power of the western districts, to furnish from their deep soils, the metals so essential to the arts of life, and to the progress of society. The copper ores only, sold during the quarter just ended, exceeds the enormous aggregate of fifty thousand tons. Nor is this particular product, raised and sold within three short months, in any sense to be considered the chief result of mining labour, or the principal fruit of the quarterly mining harvest. There is no rational doubt, that tin, iron, and lead, when we come shortly to have the returns before us, will each in their proportion exhibit as surprising an amount of industry wisely exercised, and wealth meritoriously won, as this particular return. It will be noticed also, that new soils are being pierced, and old setts retaken and reworked, to the highly profitable occupation of mining labour, and to the remuneration of the adventurers. A species of investment, furnishing such frequent prizes, must of necessity attract much of that capital which the suspension of railway enterprise has put out of profitable use. There is a deal of clear money to be got at dirty work—has grown into a proverb throughout the world; so in these times, as a rule, there is more probing the earth's dark womb, than is generally to be found at the surface, though the path peradventure may wind itself through gardens of amaranth or asphodel.

[In giving insertion to the remarks of our correspondent, to whom we are indebted for many valuable communications, which have appeared in our Journal, we must not be considered as perfectly concurring with him in the present instance, as to the prosperity of the mining interest of Cornwall, while a reference to the labour cost in the monthly sheets, of the numerous mines in Cornwall, will, we think, prove to him, that if the mines be so productive, the profit arising is not divided with the working miner; nor does the adventurer fairly participate. The article would well suit the smelters, or the deputation referred to in another column. It is only fair that we should look at both sides of the picture,—and perhaps our correspondent will further favour us by, next week, illustrating his arguments by "facts and figures." It is our wish to resort to them, and we recommend him to do likewise.]

JAMES NASMYTH'S PATENT STEAM HAMMER.—The largest and most powerful steam hammer which Mr. J. Nasmyth has as yet constructed, was by him set to work last Saturday, at Sir John Guest's extensive iron works at Dowlais. The hammer or block of cast iron, which gives the blow to the iron on the anvil, is upwards of six tons weight, with a clear fall of seven feet perpendicular. The force of the blow which this gives out is tremendous indeed, but is under such control as to be made to drive a nail into soft wood, with a succession of the most delicate taps. The perfect control under which this gigantic machine is placed will be understood by practical iron manufacturers, when we state that it treats a puddled ball in the most kindly manner, until it is brought into a compact cubical form, when a few masterly blows give final and effectual "notice to quit," to every particle of cinder or scoria that may be lurking in its most inner recesses. The immediate purpose for which Sir J. Guest has erected this monster steam hammer is to give some six or eight tremendous blows to each of the piles or blooms, from which railway bars are rolled, so as to thoroughly weld them into one solid mass ere they go to the rolls, to be extended into the finished rail. These rail blooms are 3 ft. 9 in. to 4 ft. long, and about 10 in. sq.; and as the hammer face is 3 ft. 9 in. long, by 2 ft. wide, it covers every part of the surface of the bloom at each blow. It is a remarkable sight to see the effect of these massive blows in expressing every particle of cinder from the blow. The most marked improvement in the aspect and quality of the rail was perceptible in those which had been subjected to the action of the gigantic, but most docile, hammer. It is most reasonable to expect, that the superior quality thus conferred on the iron, and the thorough welding of all the separate bars, of which it is piled in the blow, will, in the most important degree, enhance the quality and durability of the rail so produced. The anvil of this monster steam hammer is supposed to be the largest casting in the world—being no less than 36 tons in one solid mass. This important invention is now making rapid progress in regard to its adoption by iron manufacturers all over Europe and America.

CAMERON'S COALBROOK STEAM COAL, AND LOUGHOR AND SWANSEA RAILWAY.—This line, which is 9¼ miles in length, has passed the committee of the Standing Orders, and has been reported to the House—so that as no opposition exists, the usual forms only require to be observed for the passing of the measure into a law. There can be no doubt, but that a more ready and economical mode of transit for the coal, which is said to be peculiarly adapted for steam purposes—at the same time, that it is smokeless—is an important object to those who may be interested in steam navigation.

LIABILITY OF RAILWAY ALLOTTEES.—At the Exeter Assizes, Mr. Woolmer, as chairman of the provisional committee of the Direct Exeter and Plymouth Railway project, sued Mr. Toby for 105*l.*, the deposit money on 40 shares allotted to him in that scheme. It appeared that, soon after the prospectus was issued, Mr. Toby sent application, in the following form, to the directors:—"I request you will allot me 50 shares of 25*l.* each in the above railway; and I undertake to accept the same, or such number as you may allot to me, subject to the regulations of the company, and to sign the necessary documents, and to pay, when required, the deposit of 2*l.* 12s. 6d. per share." Forty shares were allotted, but the panic succeeded, and, though the scheme was considered a *bona fide* one, very few of the deposits were paid. Meanwhile the plans were lodged, and expenses to the amount of 6000*l.* incurred, but, as the money was not forthcoming, the project was necessarily abandoned. The directors applied for 3s. per share from the allottees to enable them to pay their expenses, but to these applications no replies were received. It was contended for the defence that at the most the defendant was only liable for 6*l.*, being at the rate of 3s. per share, which would pay his proportion of the loss. The jury for the plaintiff for the full amount claimed.

ABSTRACT OF PATENTS GRANTED IN MARCH.

From the *Mechanics' Magazine*.

J. Templeton, Sussex-place, Kensington, artist, for improvements in propelling carriages on railways; and improvements in propelling vessels.

J. Soutter, Limehouse, engineer, for an improved pump, applicable to steam-engines, or other purposes.

William Nicholson, of Manchester, Lancaster, engineer, and George Wardsworth, of Sutton glass-works, in the same county, manager, for certain improvements in the manufacture of glass and other vitreous products.

R. L. Jones, Chester Railway, agent, for improvements in reducing charcoal and other similar matters, to powder, and in treating the same when in a state of powder, so as to render them suitable to be used in place of vegetable black-drop, black, lamp-black, and other matters.

J. J. E. Barruel, No. 172, Rue St. Jacques, Paris, chemist, for improvements in working of certain sulphurets to transform them into metal or oxides and to collect the latter; also to collect the oxides from oxidized ores, equivalent to these sulphurets.

W. Nairne, Millbaugh, Perth, North Britain, flax-spinner, for a new mode, or new modes, of propelling carriages along railways.

P. Grout, Rouen, France, but now residing at Leicester-street, Leicester-square, doctor of medicine, for improvements in the manufacture of plaster-of-paris, lamp-black, and cake.

W. Struvé, Swansea, civil engineer, for improvements in ventilating mines.

C. H. Bovill, Millwall, and R. Griffith, Havre, France, engineers, for improvements in apparatus applicable to the working of atmospheric and other railways, canals and mines, and in improvements in transmitting gas for the purpose of lighting railways & other places.

J. Benfield, Birmingham, organ-builder, for certain improvements in making signals and communications on railways, and between railway-engines, carriages, and trains, which are also applicable to other localities.

H. Austin, 10, Walbrook, London, civil engineer, and Joseph Quick, Summer-street, Southwark, Surrey, engineer, for improvements in the construction of railways, railway-carriages, and conveyances.

T. Hancock, Esq., Stoke Newington, Middlesex, for improvements in the manufacturing and treating of articles made of caoutchouc, either alone, or in combination with other substances, and in the means used or employed in their manufacture.

J. H. Gandell and J. Brunton, Birkenhead, civil engineers, for an improvement in the construction of, and in the mode of opening and closing of, moveable bridges or arches, for the purpose of carrying railways, tramways, or other roads, across canals, locks, docks, or other open cuttings.

T. Howard, of the King and Queen Iron Works, Rotherhithe, engineer, for improvements in steam-engine condensers.

T. Pope, gent., Rolvenden, Kent, for improvements in apparatus for moving railway carriages on to railways, and in machinery for lifting and moving heavy bodies.

Current Prices of Stocks, Shares, & Metals,

STOCK EXCHANGE, Saturday morning, Twelve o'clock.

Bank Stock, 7 per Cent., shut	Dutch, 2½ per Cent., 59⅞ ⅛
3 per Cent. Reduced Ann., shut	Brazilian, 5 per Cents., 84½
3 per Cent. Consols Ann., 95⅛ ⅝	Cuba Bonds, 6 per Cent., —
3½ per Cent. Ann., shut	Chilian, 6 per Cents., 99½
Long Annuities, shut	Colombian, 6 per Cents., —
India Stock, 10½ per Cent., shut	Mexican, 5 per Cents., 30⅝ ⅛
3 per Cent. Consols for Acc., 95 ⅛	Spanish, 5 per Cents., 25½
Exchequer Bills, 1000*l.*, 27 30 pm.	Portuguese, 4 per Cents., 57
Belgian Bonds, 4½ per Cents., —	Russian, 5 per Cents., 109 8

MINES.—At the period the railroad *mania* was at its zenith, the mining interest appeared to have been overlooked; but, since the reaction in that market, the mining share market has become more animated; and although railway shares have sustained a severe fall during the present week, much business has been transacted in mining shares. Among those which have realised a better price, since our last, may be noticed—Stray Park, Seton, East Wheal Tamar, Wheal Ash, Condurrow, Herodsfoot, Mary Anne, Wheal Trethellan, Callington, &c.; whilst many shares in the following mines have changed hands—viz., West Wheal Maria, Wheal Mary, East Pool, Lamerhooe Wheal Maria, Caradon Consols, West Seton, West Bassett, Wheal Elizabeth (late Wheal Crease), Fortescue.

The money and share markets have been during the week in the most stagnant state; even in well established lines, nothing has been doing, and many holders of new scrip have been trying to sell out, but no purchasers. There has been, on the whole, a general decline in railway speculation, although the old companies maintain their prices, but many of the recently established ones are at a discount. Foreign shares have experienced the same dulness as our own—no speculators now appear in the market. There is no doubt there will be a change for the better soon, and a great improvement take place.

RAILWAY MEETINGS.—The meetings during the present week have been very limited. The half-yearly meeting of the proprietors of the Chester and Birkenhead was held on Wednesday, at Liverpool, when the chairman stated that the prospects of the company were quite flattering, as the receipts during the last 11 weeks had been at the rate of 105*l.* per week more than at the corresponding period of last year, and he had no doubt that the increase of the company would be at the rate of 7000*l.* or 8000*l.* per annum. Three of the retiring directors were re-elected unanimously. The chairman observed, that considerable inconvenience had been occasioned, owing to the last call on the new 50*l.* shares not being payable until January, 1849, and moved that the call thereon, which become due, and payable on, the 6th of July next, shall be 2*l.* per share, the whole amount then due, which was carried.—A meeting of the shareholders of the York and Lancaster was held at York, on Wednesday, when it was proposed to wind up the affairs of the company. The chairman, who had been selected, said that he considered the bill was certain not to pass the House, as the Standing Orders would be found not to have been complied with, and many influential landowners would oppose it; an amalgamation had been proposed with the Leeds and Thirsk Company, but that would be of no advantage to them, as the shares of that company were at a discount. After a very irregular discussion, it was proposed that the directors should be requested to call a meeting forthwith.—A general meeting of the directors of the Belgian Eastern Junction Railway was held at the London Tavern, on Wednesday. The accounts of the company, from an abstract of the report, were as follows:—Subscribed capital for deposit of 2*l.* 10s. per share, on 32,025 shares, 80,062*l.*; to caution money paid, 30,000*l.*; secretary, in hands of solicitors, bearing interest at 5 per cent, 12,172*l.*; to Exchequer Bills, 30,829*l.*; to cash at bankers, 4435*l.*; to cash in hands of secretary, 19*l.*; to shares purchased, 537*l.*; total of disbursements for salaries, &c., 2068*l.*—total, 80,062*l.* Mr. Stephenson's report spoke in most favourable terms of the line, and he gave it as his opinion that, although the company's undertaking would not be dependent upon any other project, yet it would be fed by every continental railway. In answer to a question, the chairman stated that the sum of 12,000*l.* had been paid to the person who had received the original concession for the line, and a further sum of 3000*l.* was to be paid to him in the event of the Chamber granting the line. After a short discussion, the body of the shareholders, with the exception of eight, expressed their wish that the scheme should be abandoned. After a vote of thanks being passed to the chairman and directors, the proceedings closed with an expression of the intention of the shareholders again to petition the Belgium Government for the dissolution of the company.—On Tuesday, the first half-yearly general meeting of the Irish Midland Great Western Company was held at Dublin. From the financial report, it appeared that a sum of 12,635*l.* was at their command, and available towards the speedy prosecution of the works, which, in every respect, were most favourable.

STANDING ORDERS.—Both the committees of Houses of Lords and Commons have been busily engaged in deciding upon the merits, or demerits, of the various railway bills that have been brought before them for their decision. The following have been declared as having complied with the Standing Orders—viz.: Blackburn, Clitheroe, and North Western Junction; Blackburn, Darwen, and Bolton (Bury branch); Huddersfield and Sheffield Junction (Darfield branch); Kinross Junction; Scottish Southern; Southampton and Dorchester postponed till Monday; Kilmarnock and Ayr Direct; Ditto and Troon; Manchester Midland and Great Grimsby; London and South Western (Basingstoke and Salisbury Extension), withdrawn; Thetford, Bury St. Edmund's, and Newmarket, postponed; also the London and Birmingham Extension; Manchester, Bolton, and Bury; Sheffield, Burton, Leeds, and Potteries. The Standing Orders Committee of the House of Commons declared, that in the case of the Birkenhead, Lancashire, and Cheshire Junction Railway petition, the Standing Orders ought to be dispensed with, and the parties permitted to proceed with the bill; also the Hull and Lincoln Railway. The following have been declared not complied with:—London and South Western (Salisbury Junction); Oxford, Southampton, Gosport, and Portsmouth; Chelmsford and Bury; Paisley, Bairhead, and Hurlet.

MESSRS. LAMOND'S SALES—TUESDAY.—North Staffordshire, Churnet, and Potteries (2*l.* 2s. pd.), 5*l.* 7s.; Universal Salvage (5*l.*), 3*l.* 2s. 6d.; South Wales (5*l.*), 3*l.* 1s.; Norfolk tenth share (2*l.*), 2*l.* 4s. 6d.; East Indian (5s.), 14s. 6d.; London and Blackwall—new (2*l.* 10s.), 3*l.* 15s.; Eastern Counties (14*l.* 16s.), 20*l.* 10s.; South Midland (2*l.* 2s.), 2*l.* 8s.; Richmond (10*l.*), 14*l.* 10s.; London and Croydon—thirds (9*l.*), 9*l.* 8s.; Company of Copper Miners in England (30*l.*), 25*l.*; Manchester and Birmingham—quarters (1*l.*), 7*l.*; South-Eastern and Dover, No. 4 (2*l.* 10s.), 2*l.* 11s. 6d.

FRIDAY.—East Indian (5s. pd.), 10s.; North Staffordshire, Churnet, and Potteries (2*l.* 2s.), 3*l.* 10s.; Eastern Counties, No. 2—5*l.* per cent. (6*l.* 13s. 4d.), 6*l.* 16s.; Eastern Counties—York Extension (10s.), 1*l.*; Orleans, Tours, and Bordeaux (6*l.*), 11*l.* 19s.; Richmond (10*l.*), 14*l.* 5s.; London and South-Western (41*l.* 6s. 10d.), 73*l.*; London and Brighton (50*l.*), 61*l.* 2s. 6d.; Northern and Eastern—quarters (12*l.* 10s.), 15*l* 12s.

HULL, THURSDAY.—Every one having transacted in shares, know so well the position of things just now, that it is superfluous to say one syllable about the matter. The buyers (not a numerous class) have all their own way. Speculation is confined to the probable amount of returns by the new companies: this, necessarily, will lead to a very general "riddling" of the new schemes, when a more healthy state of the market will, perhaps, be superinduced.

LEEDS, THURSDAY.—The share market has assumed a decidedly worse appearance within the last few days; and to-day, prices are lower than they have ever been before. Political affairs, and the strain on the money market by the calls now going on, combine to bring about this state of things. R. B. WATSON, TOOTAL, & BARFF.

IRISH STOCKS, RAILWAY SHARES, &c.—3 per Cent. Consols, 93¾*l.*; 3½ per Cent. Stock, 97¼*l*; Grand Canal Debs., 56*l.*; 6 per Cent. (reduced to 4*l.*), 55¼*l.*; 4 per Cent. City Debs. 87*l.*; Bank Stock, 203*l.*—Belfast & County Down Railway, 1½*l.*; Great County Down, Belfast, Newry, 1¼*l.*; Great Southern and Western, 16¼*l.*; Irish Great Western (Dublin to Galway), 2¼*l.*; Dublin & Belfast Junc., ¾*l.*; Dublin & Drogheda, 7¼*l.*; Dublin, Belfast, and Coleraine Junction, ¼*l.*; Dublin and Sandymount, ¼*l.*; Irish North Midland, ¼*l.*; Killarney Junction, 1¾*l.*; Newry, Warrenpoint, and Rostrevor, 3¾*l.*; Dundalk and Enniskillen, ¼*l.*—Mining Company of Ireland, 12¾*l.*; Wicklow Copper Mine, 16¾*l.*—Hibernian Bank, 29¼*l.*—City of Dublin Steam-Packet shares, 95¼*l.*

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Davison's West Hartley 14 6—Holywell Main 14 6—New Tanfield 13—Ord's Redheugh 12 6—Ravensworth's West Hartley 14 6—Taylor's West Hartley 14—Tanfield Moor 16—Wylam 14—Eden Main 14 6—Derwentwater Hartley 13—Garnant Stone 29—West Hartley Netherton 14 3—Wall's End Killingworth 13 6—Newmarch 13—Braddyll's Hetton 15 9—East Hetton 13 9—Haswell 16 6—Hetton 16—Lambton 15 6—Pemberton 14—Russell's Hetton 15 3—Stewart's 16—Kelloe 15 6—Adelaide Tees 15 3—Barrett 14—Seymour Tees 14 6—South Durham 13 6—Tees 15 6—Whitwell 12 9.—Ships arrived, 99; sold, 59; unsold, 40.

WEDNESDAY.—Adair's Main 13—Carr's Hartley 15—Davison's West Hartley 15—Hastings' Hartley 14 6—Holywell Main 14 6—New Tanfield 13—Ord's Redheugh 12 6—Tanfield Moor 16—West Hartley 15—Wylam 14 6—Eden Main 14 6—Cowpen Hartley 14 6—Garnant Stone 29—Langenneck 24—Sidney's Hartley 14 6—Wall's End Newmarch 13 6—Braddyll's Hetton 16 to 16 3—Haswell 17—Hetton 16 3—Lambton 15 9—Pemberton 14 3—Russell's Hetton 15 9—Stewart's 16 3—Heugh Hall 14 6—Adelaide Tees 15 6—Brown's Deanery 14 6—Seymour Tees 14 9—Tees 16.—Ships, 44; sold, 31; unsold, 13.

FRIDAY.—Davison's West Hartley 15—Hastings' Hartley 15—Ord's Redheugh 12 6—Tanfield Moor 16—West Hartley 15—Wall's End Eden Main 15—Braddyll's Hetton 16 3—Lambton 16—Russell's Hetton 15 9—Seymour Tees 14 9—Tees Hetton 12 6—Cowpen Hartley 15.—Ships at market, 16; sold, 14; unsold, 2.

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending March 21. was 20,462; amount of money, £85 5s. 2d.—(Last year, 165*l.* 5s. 5d.)

RAILWAY TRAFFIC.—From our official returns it appears that the amount of traffic for the last week, on nearly 1,800 miles of railway, was 122,051*l.*, thus accounted for:—59,876*l.* for the conveyance of passengers only; 32,270*l.* for the carriage of goods, and a remainder of 29,905*l.* for passengers and goods together, not respectively apportioned; being an increase over the corresponding week of last year of 11,125*l.*—*Railway Chronicle.*

THE COLLIERS.—The strike still continues, and the probability of its termination appears as remote as ever. Though a slight inconvenience was experienced at the first, yet this is no longer the case, as nearly the whole of the mines in the neighbourhood are supplied with their complement of men from other districts.—*Liverpool Mercury*, of last-night.

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
235	Andrew and Nangiles	25	55
1000	Barristown	4	26
4000	Bedford	2½	5½
128	Besore Lead Mine	—	35
390	Birch Tor Tin Mine	10	12
8000	Blaenavon	50	40
100	Botallack	175	300
120	Brewer	—	35
10000	British Iron, New, regis.	10	19½
—	Ditto ditto, scrip	10	21
128	Budnick Consols	—	30
100	Bwich Cwmerfin	20	200
1000	Callington	19	32½
256	Caradon Consols	45	70
256	Caradon Copper Mine	9½	7
256	Caradon Mines	4½	36
256	Caradon United	19	15
256	Caradon Wh. Hooper	11	5
1000	Carn Brea	15	110
114	Charlestown	—	240
256	Chypraze	—	27½
1900	Combmartin	5½	4½
128	Comfort	—	42½
5000	Con. Tretoil Mining Ass.	3½	1½
128	Condurrow	25	55
2560	Cook's Kitchen	—	8
1000	Copper Bottom	1	5
3200	Cornubian Lead Co.	3	—
1024	Cosheen	4½	25
240	Craddock Moor	9	50
128	Creeg Braws	120	80
500	Cubert Mine	10	26
1024	Devon & Courtney Con.	2	4½
1000	Dhurode	2	5
186	Dolcoath	—	80
10000	Durham County Coal	45	9
128	East Pool	5	45
9000	East Tamar Consols	1¼	3½
—	East Wheal Albert	1	3
256	East Wheal Alfred	6	12½
94	East Wheal Crofty	—	450
256	East Wheal Kitty	¼	¼
128	East Wheal Rose	50	1300
123	East Wheal Seton	2½	16
512	Fowey Consols	—	80
20000	Galvanised Iron Co.	10	10
10000	Gen. Mining Co. for Irel.	⅛	⅛
1000	Godolphin	—	35
256	Gonamena	19	125
128	Gover	23	200
244½	Grambler & St. Anbyn	—	35
100	Great Consols	1000	400
256	Great Calestick Moors	—	11
2560	Great Mitchel Consols	—	2
100	Grogwinion	5	20
1000	Gunnis Lake	1½	3
128	Hallenbeagle	—	50
1000	Hanson	5	2
1000	Harrowbarrow Old Mine	2½	6
1000	Harrowbarrow Consols	2½	2
800	Hawkmoor	3	6½
6000	Helgnston Down Con.	1	2
256	Herodsfoot	9	15
10000	Hibernian	12½	1
1000	Holmbush	14	26
256	Ivy Tor	1½	2½
1200	Kirkcudbrightshire	1½	½
2048	Lamerhoee Wh. Maria	2½	7
128	Lanarth & Penstruthal	—	150
2048	Lanivet Consols	2	6
200	Larkholes	1	3
160	Levant	—	150
1000	Lewis	12	3
128	Ludcott	3	3
2800	Marke Valley	10	3
20000	Mining Co. of Ireland	7	12½
1000	Nant-A'r-Nelle	2	2½
200	Nanterrow Consols	10½	12
128	New East Crowndale	7½	7½
128	North Fowey Consols	10	25
100	North Pool	11	38
70	North Roskear	10½	450
256	North Treburget	2½	4
100	North United	41	45
128	North Wh. Providence	2½	10
256	North Wheal Rose	22½	35
15000	Northern Coal Co.	23	2
600	Old Delabole Slate Co.	25	45
128	Par Consols	—	500
256	Penhallow Moor	15	5
100	Penrhiw	30	65
128	Pen-y-Cefn Mine	50	55
1280	Perran St. George Un.	13	20
512	Plymouth Wh. Yeoland	1½	3½
10000	Rhymney Iron	50	33 4
256	Rose Consols	10	7
1000	Rosewall Hill	1	3
1024	Roscarrock	2½	3
2500	Silver Valley	2	2
256	Sourton Consols	2½	5
128	South Caradon	5	450
260	South St. George	9⅞	14
200	South Harvannah	23	26
800	South Towan	10	1½
256	South Trelawney	8½	16
128	South Yeoland	16½	28½
128	South Wheal Basset	—	215
124	South Wh. Francis	—	100
1034	South Wh. Maria	—	5
15000	Southern & Western, Irish 1	—	—

BRITISH MINES—*continued.*

Shares.	Company.	Paid	Price
256	South Wheal Rose	2	3
256	St. Austell Consols	6	25
1000	Stray Park	43	24½
9600	Tamar Consols	3	6
6000	Tincroft	7	15
256	Ting Tang	67	30
128	Tokenbury	124	60
1024	Trelawney Consols	1¼	1
5000	Treleigh Consols	6	3½
256	Trenow Consols	—	170
96	Tresavean	10	300
120	Trethellan	5	75
120	Treviskey and Barrier	61	130
128	Trewavas	—	30
128	Trewellard	12	25½
4000	United Hills	5	4½
100	United Mines	300	900
128	West Basset	10	25
256	West Caradon	20	340
128	West Cargoll	2	15
512	West Fowey Consols	40	35
—	West Kekewich Consols	—	3⅛
256	Wheal Kekewich	4	15
256	West Providence	—	7½
200	West Seton	—	45
120	West Trethellan	5	37½
256	West Wh. Friendship	3	10
3845	West Wheal Jewel	11	3
2560	West Wh. Maria	1	3½
2560	West Wh. Mitchell	—	2
256	West Wheal Sheppard	—	15½
256	West Wheal Tolgus	21½	21
256	West Wheal Treasury	12	10
240	Westerlake	3	3
6000	Wicklow Copper	5	16⅝
256	Wheal Albert	10	12
128	Wheal Acland	13	12
256	Wheal Allen	⅛	4
368	Wheal Anderton	10½	11½
128	Wheal Ann	—	50
256	Wheal Blencowe	—	20
256	Wheal Boscastle	3½	9
128	Wheal Catherine	6½	10
256	Wh. Cleveland	2½	5
68	Wheal Clifford	—	450
1024	Wheal Concord	3½	5
256	Wheal Fortescue	1½	18⅝
384	Wheal Franco	22	58
256	Wheal Gill	17½	35
1000	Wheal Harriet	1	—
128	Wheal Henry	—	5
109	Wheal Hope (Zennor)	23	25
256	Wheal Hope	7	1½
256	Wheal Jane	6	36
265	Wheal Kendall	11½	5
1024	Wheal Maria	1	100
4000	Wheal Martha Consols	4	4
1024	Wheal Mary	1	1½
256	Wh. Mary Ann	5	63
1024	Wh. Mary (Calstock)	2½	2
256	Wheal Mary Consols	15	14
256	Wh. Mexico	3	6
256	Wheal Norris	9	10½
128	Wheal Penrose	—	5
128	Wheal Pollard	9½	30
128	Wheal Prospect	4	9
128	Wheal Providence	4	—
128	Wheal Reeth	1	60
256	Wheal Robins	13	5
128	Wheal Rose	40	20
256	Wheal Salusbury	13	5
512	Wheal Sarah	2½	5
99	Wheal Seton	150	800
256	Wheal Sisters	25½	80
128	Wheal St. Cleer	21½	40
128	Wheal Trannack	19	25
260	Wheal Trelawny	7⅜	140
256	Wheal Trevenna	4	4
256	Wheal Trewennan	—	10
128	Wheal Venland	12½	20
256	Wheal Victoria	2	6
127	Wheal Virgin	—	20
1024	Wheal Walter	2½	3
256	Wheal Williams	4	10

FOREIGN MINES.

5000	Alten Mining Company	14	2
15000	Asturian Mining Co.	5	3⅛
10000	Anglo-Mexican Co.	100	3
3374	Ditto Subscription	25	4
2000	Bolanos	150	4½
12000	Ditto Scrip	15	5
10000	Brazilian Imperial	21	4½
10000	Cata Branca (Braz. Co.)	6½	—
12000	Cobre Copper Co.	40	26
8500	Colombian Co. regis.	55	} 4⅜
5000	Ditto Scrip	—	
10000	Copiapo Mining Co.	14	2½
20000	General Mining Ass'n.	20	14
5051	Mexican Company	59	6
12000	Mocaubas & Cocaes	25	4½
29320	{ El. del Monte, regis. / Ditto unregistered }	28½	{ 3½ / 3⅜
	Ditto Red Debentures	—	19
	Ditto Black ditto	—	17
	Ditto Loan Notes	150	117
7000	Royal Santiago	10	12
2000	Pachuca Mines	3	3½
11000	St. John del Rey	15	9
43174	United Mexican	28½	4½

LATEST CURRENT PRICES OF METALS.

LONDON, MARCH 27, 1845.

		£	s.	£	s.	d.
IRON	Bar	Wales	*ton*	0	0—	8 15 0
	,,	London	..	0	0—	9 10 0
	Nail rods	,,	....	0	0—	10 5 0
	Hoop (Staf.)	,,	....	0	0—	11 15 0
	Sheet	,,	,, ...	0	0—	12 15 0
	Bars	,,	,, ...	0	0—	11 0 0
	Welsh cold-blast foundry pig			5	0—	5 15 0
	Scotch pig	*b*, Clyde		0	0—	3 10 0
	Rails			0	0—	10 15 0
	Russian, CCND	*c*..		0	0—	16 0 0
	,,	PSI	....	0	0—	16 0 0
	,,	Gourieff		0	0—	14 10 0
	,,	Archangel		0	0—	13 12 6
	Swedish	*d*, on the spot		0	0—	11 10 0
	,,	Steel, fagt.		0	0—	16 5 0
	,,	,, kegse		0	0—	15 0 0
COPPER	Tile	*f*	.....	0	0—	92 0 0
	Tough cake		.....	0	0—	93 0 0
	Best selected		.....	0	0—	96 0 0
COPPER	Ordin. sheets,	*lb.*		0	0—	0 0 10¾
	,,	bottoms	.	0	0—	0 0 11½
TIN	Com. blocks	*g*	*cwt.*	0	0—	4 19 0
	,,	bars	.....	0	0—	5 0 0
	Refined	.....		0	0—	5 1 0
	Straits	*h*	.....	4	4—	4 5 0
	Banca	.....		4	6—	4 7 0
TIN PLATES	Ch., IC	*i*, *box*		1	10—	1 12 0
	,,	IX	...	1	16—	1 18 0
	Coke, IC	.....		0	0—	1 5 0
	,,	IX	...	0	0—	1 12 0
LEAD	Sheet	*k*	.....*ton*	0	0—20	0 0
	Pig, refined	.....		0	0—21	10 0
	,,	common	....	0	0—19	10 0
	,,	Spanish, in bd.		18	0—18	10 0
	,,	American	...	0	0—	——
SPELTER	(Cake)	*l*	.....	19	10—19	12 6
ZINC	(Sheet)	*m*	export.*	0	0—30	0 0
QUICKSILVER	,,	.....	*lb.*	0	0—	0 4 6
REFINED METAL			...*ton*	0	0—	——

(From our Correspondent.)

IRON.—In Welsh and Staffordshire very little doing, and prices are about 5s. lower than those quoted in last week's *Mining Journal*. Scotch pig has been in fair demand at 70s. for exportation, and many sales have been made. A few sales of Russian, at about prices quoted, but in Swedish nothing doing.

COPPER is maintained at quotations, but the business in it is very limited.

TIN is dull, and we quote a shade lower than last week. A small lot of Straits was sold on the 23d inst., at 85s.

TIN PLATES in very limited demand.

LEAD—English, is not so brisk as it was a few weeks ago, but there is no yielding in prices. No soft Spanish. The only parcel of American, and which was at Liverpool, was sold on the 23d inst.—In SPELTER very little doing.

GLASGOW IRON TRADE.

MARCH 20.—Transactions are chiefly confined to orders for immediate shipment, in which there is a good deal doing. A sale of No. 3 was made yesterday at 67s. 6d., but for a choice of Nos., 70s. require to be paid, which we quote as the price.—*National Adv.*

MARCH 21.—The price of Scotch pig iron delivered here may be quoted to-day at 70s. per ton net cash. Extensive sales have been made this week at 70s., 69s., and 68s. cash; and at 71s., 72s. 6d., and 74s. by bill at three and four months. Common bars, 9*l.* 10s.; railway bars, 11*l.*; railway chairs, 12*l.* 10s. per ton each.

MARCH 24.—This week there has been little variation in prices. Notwithstanding the large and daily shipments, we understand considerable parcels are offering at 70s., but no buyers above 68s. and 69s. for No. 1; we, therefore, quote 70

RAILWAY SHARE LIST.

RAILWAYS.	Paid	Closing pr. last week.	Closing pr. last night.
Aberdeen	£5	6	—
Amber, Nottingham, Boston, and Erewash Junction	2½	1½	1½
Armagh, Coleraine, and Portrush—25*l.* shares	1½	¼	¼
Birmingham and Gloucester—100*l* shares	100	126	125
Birmingham and Oxford Junction—20*l* shares	2	2¼	1¼
Bristol and Exeter—100*l* shares	70	83	88
Bristol and Gloucester—50*l* per share	30	—	—
Caledonian—50*l* per share	5	10½	7½
Cambridge and Lincoln—25*l* shares	1½	—	—
Chelmsford and Bury	1½	—	—
Chester and Holyhead—50*l* shares	15	19½	16½
Cork and Killarney—50*l* shares	2½	—	—
Cork and Waterford—25*l.* shares	1½	—	—
Cornwall—50*l* shares	5	—	—
Derby, Uttoxeter, and Stafford	2½	1½	—
Direct Northern—50*l* shares	2½	1½	1½
Direct Manchester (Remington's)—20*l* shares	2½	1	¼
Ditto Rastrick's	5½	3½	3
Dublin and Belfast Junction—50*l* shares	10	6½	5½
Dublin, Belfast, and Coleraine—50*l* shares	2½	—	—
Dublin and Galway—50*l* shares	4	2	1½
Dundalk and Enniskillen—50*l* shares	2½	—	—
Eastern Counties—25*l* shares	14*l* 16*s*	20½	20½
East Lincolnshire	1½	1½	1½
Edinburgh and Glasgow—50*l* shares	50	73	72
Edinburgh and Perth	3	—	—
Exeter, Yeovil, and Dorchester—50*l* shares	2½	1½	1
Goole and Doncaster—20*l* shares	42*s*	¾ pm.	¾ dis.
Grand Junction—100*l* shares	100	—	¼
Grand Union (Nottingham and Lynn)	1½	¼	¼
Great Grimsby and Sheffield—50*l.* shares	5	—	—
Great Southern and Western (Ireland)—50*l.* shares	15	16½	16½
Great North of England—100*l* shares	100	215	211½
Great Western—100*l* shares	80	145	141
Guildford, Farnham, and Portsmouth—50*l.* shares	5	4½	4½
Hull and Selby—50*l* shares	50	100½	99
Isle of Axholme	2½	—	1¼
Lancaster and Carlisle—50*l* shares	25	52	48
Leeds and Carlisle	2½	1½	—
Leicester and Birmingham—20*l* shares	22*s*	—	¾ dis.
Leicester and Bedford—20*l* shares	22*s*	¼ dis.	¾ dis.
Leicester and Tamworth—20*l* shares	42*s*	1 dis.	1¼ dis.
Liverpool and Leeds Direct—50*l* shares	2½	2½	2
Liverpool, Manchester, and Newcastle Junction	1½	—	2½
London and Birmingham	stock.	218	214
London and Birmingham Extension—25*l* shares	1½	—	—
London and Blackwall	Av. 16*l* 13*s* 4*d*	8¼	8
London and Brighton—50*l* shares	50	68	61⅝
London and Croydon	Av. 13*l* 15*s* 9*d*	21½	20⅝
London and Greenwich	Av. 12*l* 15*s* 4*d*	9½	9½
London and South Western	Av. 41*l* 6*s* 10*d*	75½	74½
London and York—50*l* shares	2½	3	1½
London, Warwick, and Kidderminster—50*l* shares	2½	1½	1½
London, Salisbury, and Yeovil—50*l* shares	2½	1½	¾
Londonderry and Coleraine—50*l* shares	2½	6½	4½
Londonderry and Enniskillen—50*l* shares	5	—	—
Lynn and Ely—25*l.* shares	5	9½	—
Lynn and Dereham—25*l* shares	5	8	116
Manchester and Leeds—100*l* shares	82	122	75
Manchester and Birmingham—40*l* shares	40	76	¾ pm.
Manchester, Buxton, and Matlock—20*l* shares	42*s*	1½ pm.	1½
Manchester and Southampton	2	2	147½
Midland	Stock	144½	112
Ditto Birmingham and Derby	Stock	117	—
Midland Great Western (Irish)—50*l* shares	2½	—	17
Newcastle and Berwick—25*l* shares	10	—	—
Newcastle and Carlisle—100*l* shares	100	115½	42
Newcastle and Darlington Junction—25*l* shares	25	42½	35
Ditto New (Brandling)—25*l* shares	20	36	—
Newport and Abergavenny	2½	—	1½
Newry and Enniskillen—50*l.* shares	2½	—	—
Newark, Sheffield, and Boston—25*l* shares	2½	1½	23½
North British—25*l* shares	17½	25½	¼
North Devon	2	—	—
Northern and Eastern—50*l* shares	45	—	—
North Kent and Direct Dover—50*l* shares	2½	2	1½
North Staffordshire—20*l* shares	42*s*	3¼ pm.	1⅞ pm.
North Wales—25*l* shares	3½	—	22½
Norwich and Brandon—20*l* shares	18	22½	21½
Northampton, Banbury, and Cheltenham	2	—	—
Oxford, Worcester, and Wolverhampton	12½	12½	9⅝
Perth and Inverness	2½	1½	1½
Portsmouth Direct—50*l* shares	3½	—	2
Preston and Wyre—50*l* shares	50	34½	31
Richmond—20*l* shares	5	15	15
Rugby and Huntingdon—20*l* shares	2	¼	¼
Scottish Central—25*l* shares	7½	15½	13
Scottish Midland—25*l* shares	5	3	6
Sheffield and Manchester—100*l* shares	100	—	—
Shrewsbury and Birmingham	2½	2⅛	1⅞
Somersetshire Midland	2½	1½	—
South Devon—50*l* shares	25	—	—
South Eastern and Dover	Av. 33*l* 2*s* 4*d*	36	34⅞
South Midland—20*l* shares	42*s*	1 pm.	⅝ dis.
South Wales—50*l* shares	5	4½	2½
Staines and Richmond—20*l* shares	1	—	¼
Trent Valley—20*l* shares	5	27½	—
Trent Valley and Holyhead Junction—20*l* shares	2½	1⅝	1
Vale of Neath	2	1½	1⅛
Waterford and Kilkenny—20*l.* shares	3	—	½
Welsh Midland	2½	1½	1⅛
Wilts, Somerset, and Weymouth—50*l* shares	2½	2½	1
Yarmouth and Norwich—20*l.* shares	20	25	24½
York and Carlisle	2½	1½	⅝
York and North Midland—50*l* shares	50	—	94
Ditto Selby—50*l* shares	30	—	72
FOREIGN RAILWAYS.			
Boulogne and Amiens—20*l* shares	10	10½	11⅛
Bordeaux and Toulouse and Cette (Mackenzie)—20*l* shares	2	2	2
Bordeaux, Toulouse, and Cette (Espalete)—20*l.* shares	2	2½	2
Central of Spain—20*l* shares	2	½	—
Dutch Rhenish—20*l* shares	5	5½	5½
East Indian	¼	⅛	⅛
Great Northern of France (constituted)	5	16	14⅝
Great Western Bengal	¼	—	—
Great Western Canada—22½*l.* shares	3¼	3½	4
Jamaica and South Midland Junction—20*l* shares	1	1½	1½
Jamaica North Midland	1	—	—
Louvaine and Jemappe—20*l* shares	4	1½	1½
Lyons and Avignon—20*l* shares	2	2	2
Luxembourg	4	2	1½
Namur and Liege—20*l* shares	4	3	1½
Orleans and Vierzon—20*l* shares	10	—	16½
Orleans and Bordeaux—20*l* shares	6	12½	11½
Paris and St. Quentin—20*l* per share	2	—	—
Paris and Orleans—20*l* shares	20	51	50
Paris and Rouen—20*l* shares	20	—	—
Rouen and Havre—20*l* shares	18	—	30
Sambre and Meuse—20*l* shares	6	4	3½
Strasburg and Basle—14*l* shares	14	—	—
West Flanders	4	3½	3

* Prices obtained from country brokers—no business doing in the London market.

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. Rway.	Present actual cost.	Last Div.	Traffic Returns. 1846	1845
Arbroath and Forfar	15	£140,782	2½ p. c.	£ 195 0 0	£132
Chester and Birkenhead	15	520,640	2½	507 16 3	559
Dublin and Drogheda	32	631,258	4	653 6 11	520
Dublin and Kingstown	6	349,736	9	556 16 4	612
Dundee and Arbroath	17	153,598	4	263 8 0	244
Durham and Sunderland	19	302,118	2	298 7 5	366
E. Counties & North. & East.	124½	4,090,328	5	6980 10 7	3884
Edinburgh and Glasgow	46	1,686,226	6	2673 4 8	2077
Glasgow, Paisley, and Ayr	51	1,104,773	6	1776 12 4	1497
Glasgow, Paisley, & Greenock	23	806,134	2	731 12 8	701
Grand Junction Company *	98	2,597,317	10	—	7854
Gravesend and Rochester	6	85,000	5	150 17 9	—
Great North of England	45	1,296,196	6	—	2886
Great Western	220	7,717,043	8	15848 19 7	13589
Hartlepool	—	—	—	546 14 1	—
London and Birmingham†	176	6,997,065	10	34752 0 4	14564
London and Blackwall	4	1,078,851	1½	695 6 3	823
London and Brighton	56	2,653,673	4	3771 5 10	3477
London and Croydon	10	842,592	3½	1186 5 2	969
London and South-Western	93	2,620,724	9	5228 5 7	4733
Manchester and Birmingham	31	1,959,063	6	4124 16 9	3433
Manchester & Leeds	51	3,972,869	8	5298 9 10	6566
Manchester, Bolton, & Bury	10	805,968	5½	965 1 7	911
Midland Company	179	6,284,631	6	15448 16 7	9272
Newcastle and Carlisle§	61	1,137,385	5	1666 11 7	1486
Newcastle and Darlington	22½	1,156,379	8	2874 2 8	1043
Newcastle and North Shields	7	316,869	5	315 12 1	631
Norfolk	—	—	—	1124 11 10	232
North Union, Bolton &c.§	32	1,060,551	6½	—	1351
Preston and Wyre	22	432,014	2	514 14 10	369
Sheffield and Manchester	19	1,313,225	5	1634 15 6	654
South-Eastern and Dover‡	88	4,284,924	3½	5134 6 10	4151
Taff Vale	30	611,073	3½	1102 15 5	863
Ulster	25	358,353	5	625 4 4½	612
Yarmouth and Norwich‖	20½	250,037	5	—	232
York and North Midland	53	1,279,951	10	5217 17 1	2606
Paris and Orleans	82	2,082,916	8	—	4980
Paris and Rouen	84	1,995,306	9	5572 0 0	4505

* The traffic return of this company is now included in the London and Birmingham.
† Including the Grand Junction Company.
‡ Including the Greenwich line.
§ Included in the Manchester and Leeds.
‖ Included in Eastern Counties.

MEETINGS OF PUBLIC COMPANIES IN THE ENSUING WEEK.

SATURDAY.... Holmbush Mining Company—office, at One.
MONDAY..... Hawkmoor Mining Company—office, at Twelve.
Gumis Lake Mining Company—office, at half-past Twelve.
East Tamar Consols Mining Company—office, at One.
City Steam-Boat Company—office, at Twelve.
TUESDAY..... Patent Galvanised Iron Company—offices, at Two.
Van Diemen's Land Company—offices, at Twelve.
British American Land Company—London Tavern, at Two.
THURSDAY.... Wheal Fortescue Mining Company—office, Tavistock, at Four.
London and Croydon Railway—station, at Twelve.
London and Brighton Railway—station, at One.
FRIDAY..... Stray Park and Camborne Vean Mining Company—on the mines.
West Wheal Maria Mining Company—Bedford Hotel, Tavistock.
SATURDAY.... Tretoll Mining Company—offices, at One.

[*The meetings of Mining Companies are inserted among the Mining Intelligence.*]

LAMERHOOE WHEAL MARIA COPPER MINE:
ROSCARROCK SILVER-LEAD MINE:
WHEAL MARY SILVER AND COPPER MINE:
WHEAL WALTER COPPER AND LEAD MINE:
WHEAL CONCORD LEAD AND COPPER MINE:
WHEAL BRAY COPPER MINE:
WHEAL WEEKES COPPER MINE:
WHEAL KELLY LEAD AND COPPER MINE:
WHEAL BRADSTONE LEAD AND COPPER MINE: 31
WHEAL DUNTERTON COPPER MINE:
COSHEEN COPPER MINE, county of Cork, Ireland.
The BUSINESS of the ABOVE MINES is now CONDUCTED at No. 4, KING-STREET, CHEAPSIDE, where specimens may be seen, and all particulars obtained.
Dated March 21, 1846. JAMES CROFTS, Secretary.

MINING OFFICES, REMOVED FROM 16, CORNHILL, to 1, THREE KING COURT, LOMBARD-STREET.—Mr. R. TREDINNICK (of Cornwall), having established PRACTICAL AGENTS and CORRESPONDENTS in every MINING DISTRICT, whereby he obtains early and accurate information respecting MINES, proffers his services to capitalists and adventurers in the PURCHASE and DISPOSAL of SHARES. Mr. Tredinnick has business to do in the following MINES:

Mary Ann	West Seton	North Roskear
Trelawney	West Tolgus	East Crofty
Herodsfoot	North Pool	Andrew and Nangles 32

And is a BUYER of 1-99th Seaton, at £800.

MINING PROPERTY.—CAPITALISTS who are disposed to INVEST in CORNISH and FOREIGN MINES, will find the present opportunity very favourable for so doing. From large sums having been lately diverted from such investments for railway speculations, standard mines are now selling at prices that will pay the purchaser 20 per cent. per annum for his outlay. There are also other mines that are on the eve of paying dividends, which can be recommended with confidence.
Applications to be made to Mr. JAMES HERBON, mining agent, No. 3, Adam's-court, Broad-street, London. 33

PAUL RABEY, Jun., and CO., beg to acquaint their London and Cornish friends, that they have OPENED an OFFICE at No. 12, COPTHALL-COURT, LONDON. Having been promised the support of a very numerous and highly respectable connection, both in London and Cornwall, they have much pleasure in offering their SERVICES as MINE and SHARE BROKERS—assuring all those who may favour them with their commissions, that prompt attention, energy, and strict integrity, shall form the basis upon which all transactions will be conducted.
WANTED TO PURCHASE—1-99th in Wheal Seton; 2-200ths in West Seton. 34

MR. H. B. RYE (from Cornwall), MINE AND RAILWAY SHARE AGENT, 80, OLD BROAD STREET, LONDON.
Mines inspected, and every information may be obtained on application. 35

THOS. P. THOMAS, of the late firm of RYE and THOMAS, MINE AGENT, AND DEALER IN RAILWAY AND OTHER SHARES, 80, *OLD BROAD-STREET, LONDON.* 36

JAMES LANE, SHARE AGENT, *HALL OF COMMERCE, LONDON.* 37

WILLIAM TRENERY, DEALER IN RAILWAY AND MINING SHARES.—ESTABLISHED TEN YEARS.
OFFICES, No. 50, THREADNEEDLE-STREET, LONDON. 38

WILLIAM FOX AND SON, No. 53, CASTLE-STREET, LIVERPOOL, have always on SALE PIG-IRON, RAILWAY BARS, CHAIRS, and IRON of every description.—TIN PLATES, WIRE, &c. 39

MESSRS. LAMOND, SMALE, and LAMOND'S PUBLIC SALE OF RAILWAY SHARES, &c., are HELD, at the Hall of Commerce Threadneedle-street, every TUESDAY and FRIDAY, at One o'clock precisely.—Orde received until Four o'clock of the day prior to sale.—London, March 27, 1846. 40

COPPER ORES.

Sampled March 11, and Sold at Pearce's Hotel, Truro, March 26, 1846.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
United Mines	104	£4 13 0	South Caradon	51	£11 1 0
ditto	102	4 7 0	ditto	32	4 7 6
ditto	101	4 10 6	Great St. George	62	2 4 0
ditto	99	5 18 0	ditto	47	2 14 6
ditto	93	5 0 6	ditto	37	5 3 6
ditto	84	5 11 0	ditto	26	6 8 0
ditto	83	5 10 6	Bolenna	65	3 18 0
ditto	82	4 0 0	ditto	30	8 10 6
ditto	67	3 18 0	ditto	25	6 1 0
ditto	61	4 18 6	Par Consols	83	4 3 6
Consolidated	103	9 7 6	ditto	75	4 15 0
ditto	94	6 18 6	ditto	71	4 5 6
ditto	88	6 3 6	ditto	51	6 6 0
ditto	78	6 19 6	Trethellan	83	2 7 0
ditto	76	5 14 6	ditto	64	3 7 6
ditto	72	4 19 6	ditto	49	4 0 0
ditto	62	4 9 0	ditto	16	2 0 0
ditto	61	4 6 6	Treleigh Consols	81	3 13 0
ditto	54	4 9 0	ditto	77	7 17 6
ditto	40	4 16 6	Wh. Ellen	83	6 11 0
ditto	38	3 15 6	ditto	27	3 15 0
ditto	33	2 8 6	ditto	19	3 14 6
ditto	23	5 4 6	Wh. Sisters	58	2 0 6
ditto	3	10 0 6	ditto	49	5 18 0
Tresavean	92	3 17 0	Wh. Andrew	34	2 6 0
ditto	89	4 14 0	ditto	25	8 9 6
ditto	87	4 0 6	Nangles	9	4 17 6
ditto	73	4 4 0	Wh. Anna	38	1 5 0
ditto	60	3 5 0	ditto	24	5 4 6
ditto	55	1 9 0	Wh. Comfort	22	3 12 0
ditto	42	2 16 6	ditto	16	0 16 0
ditto	38	0 12 0	Williams's East D.	30	4 10 6
South Caradon	128	5 3 0	Wh. Rock	11	1 14 0
ditto	107	4 15 6	ditto	4	0 10 6

TOTAL PRODUCE.

United Mines	876	£4273 1 6	Treleigh Consols	158	£992 0 6
Consolidated Mines	625	4844 1 6	Wh. Ellen	129	715 13 6
Tresavean	536	1845 9 6	Wh. Sisters	107	406 11 0
South Caradon	318	1873 13 6	Wh. Andrew & Nang.	65	327 1 0
Great St. George	292	1282 17 0	Wh. Anna	62	172 18 0
Bolenna			Wh. Comfort	38	92 3 0
Par Consols	280	1327 12 0	William's East Downs	30	135 15 0
Trethellan	212	639 1 0	Wh. Rock	15	20 16 0

Average standard, 106*l.* 13*s.*—Average produce, 7.—Average price per ton, 4*l.* 15*s.* 6*d.*—Quantity of ore, 3943 tons.—Quantity of fine copper, 278 tons 8 cwt.—Amount of money, 18,858*l.* 11*s.* 0*d.*—Average standard of last sale, 93*l.* 17*s.* 0*d.*—Average produce ditto, 8¼.

Copper ores for sale on Thursday next, at Serpell's Hotel, Pool.—Mines and Parcels.—Wheal Seton 619—Tincroft 553—Camborne Vean 491—East Wheal Crofty 479—Fowey Consols 332—South Wheal Basset 287—Dolcoath 242—Lanivet Consols 221—Grambler and St. Aubyn 184—Treviskey 129—Godolphin 95—East Pool 89—Trefoil 53—Condurrow 40—Barrier 25—West Grambler 10—East Crinnis 4.—Total, 3863 tons.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—Mines and Parcels.—Carn Brea 548—Par Consols 354—Wh. Prosper and Wheal Friendship 287—United Hills and Wheal Sparrow 246—Trenow Consols 156—Wheal Providence 151—Trewavas 137—Wheal Virgin 104—Brewer 89—Providence Mines 64—Wheal Kayle 63—Cook's Kitchen 33—North Basset 20—Wheal Penrose 11—East Relistian 4.—Total, 2267 tons.

BLACK TIN

Sold on the 19th, 20th, and 23d of March, 1846.

Mines.	Tons.	Price.	Amount.	Purchasers.
Par Consols	12	£54 0 0	£648 0 0	Bolitho; Williams.
Chypraze	1½	56 5 0	70 1 3	Williams and Co.
ditto	6½	57 7 6	358 11 10½	Bolitho; Williams.
ditto	2	51 0 0	102 0 0	Daubuz
Gover	2	56 10 0	113 0 0	Bolitho; Williams.
ditto	½	48 10 0	24 5 0	Ditto
ditto	3 cwts.	53 0 0	7 11 5	Ditto

Total, 24 tons 3 cwt.—Amount of Money, 1323*l.* 9*s.* 6*d.*

LEAD ORE

Sold on the 11th of March, 1846.

Mines.	Tons	Cwt.	Qrs.	Price.	Amount.	Purchasers.
South St. George	12	4	3	£10 1 6	£123 3 6	R. Michell and Sons

BLENDE.

Sold on the 14th of March, 1846.

Mines.	Tons C.	Price.	Amount	Purchasers.
South St. George	87 3	£2 0 0	£174 5 0	Williams, Foster, & Co.

COPPER ORES

Copper ores for sale April 1.—Cobre 86, ditto 81, ditto 79, ditto 76, ditto 69, ditto 64 ditto 54, ditto 14.—Cuba 73, ditto 71, ditto 70, ditto 67, ditto 66, ditto 58.—Chili 100, ditto 99, ditto 21, ditto 3, ditto 2.—Knockmahon 97, ditto 83.—Tigrony 73, ditto 60, ditto 11, ditto 9.—Kaw-aw 35, ditto 16.—Cronebane 40.—French 19.—Battersea 13.—Abbey Regulus 6.—Spanish 3.—Australian 2.—Total, 1629 tons.

NOTICES TO CORRESPONDENTS.

"W. R. C." (Sunderland).—The catastrophe at the Lescoe Colliery, near Derby, was noticed in the Journal of the 14th inst.

"A Constant Reader."—We have not received the information; but, fully agreeing in its importance, will endeavour to obtain it regularly in future.

"N. W." (Liskeard).—A description has already appeared. We shall, however, in the course of a week or two, have occasion again to refer to the subject, when the suggestion shall be attended to.

"Mercator" (Redruth).—The excellent paper on the important subject of Tin Bounds, by F. Hill, Esq., which we published some time since, is now undergoing revision by the author, and we shall shortly have the pleasure of laying it before our readers.

"J. B."—We are greatly obliged to our correspondent for his favour, which shall receive every attention.

"J. P." (Gateshead).—The subject shall be noticed in our next.

The communication from "J. R." (Manchester) has been received; as also those of "A Friend" (Liverpool), and "R. B." (Redruth).

MINING IN AUSTRALIA.—If "D. R.," whose letter appeared in last week's Journal, will forward his address to Mr. John Phillips, Pool, Illogan, Cornwall, he will receive a scale, or table, assigning a value to copper ore of any produce. The scale obtained a prize from the Scientific Institution of Cornwall.

THE MINING JOURNAL

And Atmospheric Railway Gazette.

LONDON, MARCH 28, 1846.

As we predicted, some weeks since, the Anti-English Mineral League has made further attempts, if not progressed, in its movements; and while we may be said not to have been sleeping at our post, we have deemed it prudent rather to watch the enemy and prepare ourselves for the attack, than to enter into the field without first being acquainted with the tactics and the power which they are capable of putting forward. The time, however, would appear now to have arrived, that we must call upon the staff, that a commission must ensue, requiring all embarked in the cause to lend their aid; and while we can count on so many regulars, we need not beat for recruits—as volunteers, we doubt not, will readily come forward, willing to fight not only their own battles, but those who are dependent on them—need we say the working miners? Ever have we upheld the working miner's cause, and, while our *columns* are devoted to the mining interest, we shall have no hesitation in endeavouring to raise *columns* of miners to support the mining industry of this country, despite the capitalist, who would sacrifice England to obtain an increased per centage on his investment in foreign mines.

We trust we shall never see the day, and we call upon the mining interest at large—the lord, the adventurer, the working miner, the merchant—nay, even the carrier and the craft, which conveys the ore from Cornwall to the smelter's home, at Swansea—to come forward at once by public meeting, by petition—however absurd may be the idea of such being listened to—and by a general demonstration of feeling, to show to the Government, and to the Legislature, that, however the agricultural interests may bend to the Ministerial nod, that such is not to be expected from the hard-working and ill-paid miner. Let us, however, take the memorial presented, and the constitution of the deputation, as appears in a report, which will be found in another column. We will endeavour to go forward progressively, step by step; for our observations are more particularly directed to the attention of the working miner; and would that we had time to make a visit to the several mining districts, and convene public meetings. Facts and figures form the motto we have ever adopted, and we are ready to submit them to those whose very existence must be sacrificed, if the measures proposed to the Government be adopted. Where, we ask, are the Cornish members? True, it is Mr. TRELAWNEY has shown himself up—he is one of the wolves in sheep's clothing, and there are others, who shelter themselves under the brow of the hill, ready to pounce upon the lambs who have innocently given them power; but, like the fox, too cunning to expose a want of power, until they feel the prey is their own. Among those "interested in the copper trade," who had the interview with Sir R. PEEL, on Saturday last, we find Lord SANDON, Member for Liverpool. This we can well understand; he did his bidding, and Mr. BUDD, of that important town, as merchant and as smelter, in connection with VIVIAN'S house, of Swansea, also was in attendance; where, we would ask, was the hon. Member (Mr. VIVIAN) himself? Is he ashamed to put himself forward, or did he consider that his interests were so well represented, that it was unnecessary?

We next come to Mr. MASTERMAN, Member for the City. Now this gentleman, although, we believe, largely interested in the lead trade, doubtless, with a kindly feeling, and, moreover, influenced by certain parties, was induced to act on the truly Christian principle, of "do unto others as you would have them do unto you." We may, therefore, dismiss this gentleman with the hope, that the like Christian feeling will be displayed by him throughout all his duties in his passage through life. Next, we come to Mr. MUNTZ, M.P. for Birmingham. Now, this gentleman, as appears by his own statement, in his place in the House of Commons, is interested in the manufacture of the yellow metal, or MUNTZ'S metal, applied to the sheathing of vessels, which is composed of copper and zinc, the former, if we recollect aright, in proportion of 60 per cent, to 40 per cent. of the latter. We do not say that the hon. Member is influenced by any private interests, for, as a manufacturer and consumer, as he tells us, of 1500 tons of zinc per annum, at least, are consumed by him, which must needs take up about 2000 tons of copper in combination therewith; and, as Mr. MUNTZ, moreover, sells his yellow metal in opposition to copper, it is to his advantage that raw copper should be dear, as he only pays on three-fifths of the weight he sells the extra price of the copper, and receives the difference on the five-fifths, or whole of his sales; notwithstanding this, he, in faithfully representing his constituents, can only, now their protection is to be reduced, advocate the repeal of duties on the raw material, upon which they work. Mr. THORNELY, M.P. for Liverpool, and, no doubt, a kind, well-meaning, harmless sort of man, with Mr. PARKER, M.P., and Sir HOWARD DOUGLAS, M.P., sum up the number of Members of the Legislature, who thus take upon themselves the advocacy of free trade on copper ore. Let us next see whom we have in addition, as forming the deputation; and merely referring to our report, it is sufficient to say that they begin with the smelting interest of Swansea, and end with the mining interest of Cuba.

Having thus said a word as to the highly-respectable and independent members of the deputation—"all honourable men"—we will just make a passing remark on the addresses of the worthy deputies. Mr. BROWNELL, after giving a detailed state of the export trade of copper ores from Chili and Cuba, and which has been presented to our readers from time to time, in our reports of sale of ores, more particularly as regards the past 12 months, in the Journals of Jan. 3 and 10, proceeds to observe on the disadvantages (?) suffered by the restrictions on imports to the smelters in this country: and then proceeds to advert to the *necessity* (?) of obtaining a good supply of the superior ores of South America. Perhaps the worthy deputy will explain what he really means by the assertion, for we have always been led to understand that the poorer ores of Cornwall, Wales, and Ireland, were indispensable to mix with the rich ores of Cuba and Chili, and hence the *necessity* imposed on the foreign miner, of importing ores to this country—while the advantages offered, in addition to the admixture of the ores, that of the easy cost of coal, and a home and foreign market, presenting itself for the manufactured produce was really the cause, to which, indeed, we believe we are to attribute the *boon*, which the miners of England receive; at the same time that it would appear the whole amount received during the past year, in the shape of duty, amounted alone to the sum of 65,000*l.* It must not be lost sight of, that the purchase-money of the Cobre mines was no less than 480,000*l.*, or

nearly eight times the amount of the duties received during the past year—the profits on this alone amounting to several hundred thousands. If, again, we refer to Santiago, we believe here not more than 40,000*l.* was expended, and yet the returns, in the shape of dividends, have amounted to many times the extent of the purchase-money, not to advert to the large balance in hand at this moment. These, then, it is said, are the parties, and Mr. LECKIE, as the secretary of the Cobre Mining Association, attends in his official capacity to urge on the Government the propriety of withdrawing the import duty.

It is a disgrace thus to see the capitalist and the smelter, the smelto merchant and manufacturer, combining to destroy legitimate mining in this country, to deteriorate the value of property, and alter the position of the lord, from being the receiver of a royalty, and seeing his rents duly paid, arising from the working of the mines on his estate, to that of a poor law guardian, doling out to those who were in former times actively employed, although at poor earnings —that bare subsistence, which is extracted from the pockets of his neighbours and himself. It is painful to contemplate a change such as all must be prepared for, if these smelto merchants, and their dupes, have their sway with the Minister: however, we still hope that Sir R. PEEL has sufficient honesty left, after the many slides he has made, to deal out something like even-handed justice, and not sacrifice the many to the few. We have some 300 or 400 mines at work in Cornwall, and there are, say, 60,000 employed; in Ireland and Wales we will take the number at 15,000—thus making an aggregate of 75,000, irrespective of those who are dependent on them. Let us, on the other side, take the number of smelters, and their profits from the smelting of foreign ores, amalgamated with those of home pro luce, and who, according to the Ticketing Papers, some six houses, possibly, employ 2000 men. The question which arises out of this admits of no argument—it is too conclusive. In the one instance, we have a vast outlay of capital, which, if we may judge from the market value, and that assumed as to the respective mines, is no less than tens of millions—thousands of adventurers being engaged and interested therein; while, with the smelters, six houses, perhaps, have embarked, in the whole, some two millions of capital, which, we take it, will cover the entire amount. We are, however, running away from the arguments (?) adduced, to which we must again return. We are then told, that the disadvantageous competition, arising from new establishments in the United States, which obtained their raw material, "unincumbered with the import chargeable in this country," were urged by Mr. VIVIAN and Mr. KEATES. We would here humbly submit to these two gentlemen, that there must have been some ruling power which influenced them, in thus placing before the Minister a statement calculated to mislead, and which could only have arisen from some hidden motive. Do they mean to say, that the foreign miner is prejudiced by thus finding a ready (?) market for his ores? Do they mean to say, that the smelter is prejudiced, because he has not a greater influx of ores in the market? or does he say that the English miner suffers because the foreign ores go to America, instead of coming in competition with those produced at home? Perhaps these gentlemen will inform us, which position of the three they assume, or, in the absence of either, whether they will adopt any other—at same time not forgetting that, in the first place, copper ore cannot be smelted in America at a reduced cost, while there is an absence of the admixture of the poorer ores, found to be so essential, at least by our smelters at Swansea, and which they are free, because they are bound, to acknowledge. Mr. MASTERMAN stated his belief, that the revenue, arising from the import of foreign ores, would be found to decline—the sooner the better, say we; but we would ask the hon. member, what reason is there to assume that the duties will decline, when we find, on comparing the imports of former years with 1845, that a vast increase has taken place—a matter evidently lost sight of. We can tell the hon. member, if he is not connected with the Cobre, or other, mines, that there are tens of thousands of tons of ore lying at surface, as attle, or waste, which, were the duty to be taken off, would be brought to this country, and inundate the market—they are, for the most part, sulphurets, yielding 8 to 12 per cent., which, at present, will not pay the cost of transit; but which, were the duty once removed, we should find would replace the Cornish ores, and cause a revolution, from which it would be hard to recover. It is easy to stop a mine, but it is no easy matter to resume its workings, when the water is once in. However, we must needs proceed:—Mr. MUNTZ next appears in *propria persona*, and he tells us that his Birmingham constituents think this and that: we do not doubt him, we believe him to be honest, and the representations made by his constituents to be equally so—they wish to serve themselves, no matter at whose cost, and it is his duty to serve them.

Mr. PARKER, for Sheffield, had his say; and then Mr. W. R. LLOYD talked big, and said that as many as 30—hear this, ye Cornish miners—yes, as many as *thirty* mechanics, earning from 18s. to 30s. per week, had actually been "smugged" out of Birmingham, and been engaged by agents from New York at the rate of 36s. per week. He certainly talked of admitting French *rolls*, and the disadvantage arising from merchants having bills on New York, instead of Swansea: we can very well understand this, but we do not think that the system of repudiation, as practised by our Republican neighbours, or the Oregon question, in any way effects, or should be considered to apply to the mining interest. Mr. THOS. LLOYD illumined the Minister, by giving the result of his observations on a recent visit to Cuba—he having, actually with his own eyes, seen shipments of copper ore at the Havannah, made to the United States, which he tells us, but for the restrictive duty, would have been sent to this country. Perhaps, this gentleman will inform us the quantity of ores shipped, the date of their shipment, the produce or per cent., the charge for freight, the commission and landing charges, and the price realised per ton for the ore delivered, we will then be ready to meet him with the Swansea ticketing price for foreign ores of the same produce, and of a relative period, and on this we will join issue. We can anticipate the result, if the inquiry be instituted—while we can, at the same time, further anticipate the result of our challenge that it will not be accepted, although, to prevent any errors of the press, or the delivery of the MINING JOURNAL, the question shall be submitted to that gentleman in a manuscript form. We are further informed other gentlemen took part in the discussion, and that Sir R. PEEL, the protective Minister, "did not give any *assurance* (thinking, no doubt, the deputation possessed enough) of relief, but appeared to pay great attention to all that was brought before him." This is not the first occasion that the Minister has "appeared to pay great attention," and we augur favourably from the circumstance.

As regards the petition itself, as emanating from the "merchants and manufacturers of Birmingham," for such it purports to be, we can find no fault; let each class look to its own interests, and the manufacturers of Birmingham are, doubtless, fully justified in pressing on the attention of Government the reduction, or abolition of duty, on such articles, or foreign produce, as may tend to lower the price of the raw material, and thus enable them to compete with foreign manufacturers, assuming that the latter can produce the manufactured article at a reduced rate. The Birmingham artisan is not, however, alone to be considered—more especially when we find that full *thirty* of them have been secured for the United States, at an advance of wages of full 20 per cent.! but, we would ask, assuming that a free import of copper ore was allowed, would it increase the wages of the work man?—we contend not. No; the smelters, those who live on the capital and labour of the miner, they alone would benefit.

We have thus considered the memorial, as that of the merchants and manufacturers of Birmingham; but, when we reflect on those who are the promoters and supporters of this measure—when we find that the representative of Liverpool houses, the Swansea smelters, and the foreign miners, form the principal members of the deputation—we cannot but consider that the Birmingham merchants and manufacturers have been made the dupes, and put forward as representing the interests of others. We do not deem it necessary to follow the terms or representations, whether fallacious or otherwise, in which the memorial is couched, as such is given entire in another column; nor, we repeat, are we disposed to canvass with the Birmingham manufacturer what is best calculated to promote his interest. It is alone sufficient for us that we direct attention to the manœuvres practised by the smelters, and we trust that an exposure, like the present, will have the desired effect.

We have repeatedly noticed the contest that has been going on for some time in France between the manufacturers and influential men of Lyons, and other parts of the south of France, against the coal mine monopoly of the Loire, St. Etienne, Rive de Gier, and the extensive seams of Burgundy. Numerous petitions from the Chambers of Commerce of Lyons, and other opulent manufacturing towns, have been addressed for many months past to the Ministers of Commerce and Agriculture, and Public Works, on the subject, praying that the Government would investigate the subject, as being highly detrimental to the prosperity of every branch of industry in that part of the kingdom. We have, on many occasions, expressed our disapprobation of monopoly of every description, whether it be in mining enterprise or manufactural, as, wherever that exists, it is always one of the greatest drawbacks to energy and speculation. It is true that, in France, many parties obtain from Government concessions, or grants, to work coal, iron, lead, and other mines; that they eventually find they cannot proceed with, not having sufficient funds to work them to any advantage, and, consequently, they are at last abandoned, and themselves ruined, leaving them open to any adventurous company to take possession of them, by obtaining a concession from the Minister of Public Works, who is always ready to grant every facility to mining industry. As we have already remarked, monopoly is prejudicial to the prosperity of every country; but, at the same time, when it is requisite to carry out extensive operations, that can only be done by influential parties; England would never have had her splendid steamers and numerous railways, had it not been for this—no small sums will do where large projects are contemplated. We cannot do better, however, than refer our readers to the interesting letter of our intelligent Paris Correspondent, on this subject, which excites so much interest in France.

The attention of the scientific world, as well as all who are connected with colliery operations, and those actuated alone by purely philanthropic motives, has long been directed to the explosions in collieries, and the best methods for the avoidance of such fatal results as too frequently occur, by introducing improved modes of ventilation, and also the use of the DAVY lamp (as the safety lamp is generally designated), where a fiery or explosive mixture is likely to come in contact with the flame. We are led to offer some few observations on the use of the safety lamp, from the circumstance of Dr. CLANNY's improved lamp having been exhibited at the Society of Arts, on Wednesday evening last, when an interesting description of its properties and advantages over the ordinary lamp, as constructed by Sir H. DAVY, was given; while it is gratifying to learn and record the fact, as stated by Dr. REID, who introduced the subject in a very able manner, that to Dr. CLANNY is due its first introduction—a point, however, denied by Mr. RETTIE, in the course of the discussion to which the subject gave rise, who claimed the merit as due to Dr. MURRAY, of Hull, our able and talented correspondent;—a point, however, further disputed by Dr. REID, who asserted that the Dr. MURRAY mentioned was of Edinburgh. Without entering into the question as to the individual to whom the merit is due for its first introduction, we agree with Dr. REID, that the grand desideratum has been acquired by the application and improvement of others—while we are, at the same time, ready to admit with Mr. RETTIE, and Mr. A. T. MARTIN, who took part in the discussion, that the inventor has a priority of claim which should not be overlooked, whenever the merits of the invention are canvassed.

The construction of the ordinary lamp is generally known as having a cylindrical case of wire gauze, through which the air, necessary for keeping up ignition, is admitted; at the same time, that it precludes the flame from the lamp or burner coming in contact with the foul air, or gaseous vapour, which may exist in the workings, or occasionally escape from "blowers" in the seat or roof of the coal. The lamp thus constructed has been generally employed and considered, as its title implies a safety lamp; but the numerous fatal accidents which have occurred, arising from the explosion of fire damp, even where the DAVY lamp is used, at once disproves the correctness of the opinion so entertained. Dr. REID, in the course of his observations, in introducing the improved safety lamp of Dr. CLANNY to the notice of the society, observed, that he had traversed many miles underground with the ordinary safety lamp, as constructed by Sir H. DAVY, and that submitted to the society, whereby he had a practical demonstration of the superiority of the latter over the former, as regards the increased power of light acquired, while with Sir H. DAVY's lamp, he observed the lengthened snuff or top of the cotton in the lamp, with a strong current, was forced through the gauze. We should here mention, that the only difference we could observe between the two lamps—but in which the merit lies—is the application or the substitution of a glass shade, or cylinder, in lieu of the wire gauze, at the immediate point where the flame emits light, and which is continued from thence, or within an inch of the top of the flame, to the upper part of the lamp, by a cylinder of wire gauze—thus giving additional light to the collier, and, at the same time, preventing any lateral pressure, or power of the noxious vapour, being forced through the lamp, so as to allow it coming in contact with the flame, which is the case with the ordinary lamp. It will thus be seen that two advantages are gained—the one, a much more powerful light being obtained; and next, the gaseous vapour, instead of passing through the lamp at a point which would bring it into contact with the flame, entering at the upper part, and thereby precluding the danger otherwise to be apprehended from ignition. It may be here observed, that the current, passing through the lamp, or the air consumed, does not, in Dr. CLANNY's lamp, come in contact with the flame; but, being admitted at a higher point, forms an eddy, when coming in contact with the flame, and which, aided by the rarifaction of the air, escapes from the top or upper portion of the lamp. By these means, as we have already observed, the two great objects are achieved—increase of light to the workman, and less disposition of ignition arising. The glass cylinder, or shade, is, moreover, protected by bars, which are placed in a vertical position, but so as not to affect the light—[a drawing and description of the lamp having been given in a previous NUMBER].

Mr. RETTIE, in remarking on the improvement thus brought forward, as contrasted with the original DAVY lamp, considered that fair play had not been manifested by Dr. REID, in discussing the merits, inasmuch that the lamp submitted was subject to accidents arising from breakage, by coming into contact with any substance, which was not the case with that constructed entirely of wire gauze; while that gentleman had not adverted to the improvement which had taken place, of having a double cylinder of gauze constructed, so as to do away with the chance, if not the possibility, of ignition, arising from contact with the flame, taking place. Dr. REID admitted further, that the DAVY lamp, to which he referred, was one of the ordinary construction, and not that referred to by Mr. RETTIE; while Mr. FAREY observed, that however safe might be the lamp with the double cylinder, yet that such admitted so faint a light, as to be comparatively useless to the collier, except in examining drifts, or old workings, where gaseous and noxious vapours are known to exist—the object in doing which being rather to explore than to cut, or work, the coal. The lamp of Dr. MURRAY, which is supplied with pure air by means of a flexible tube from the bottom of the shaft, and introduced at the bottom of the lamp, was referred to by Mr. RETTIE as being a great improvement, and thus getting rid of the necessity which otherwise existed of employing a deleterious admixture for consumption of the lamp. We must say, that so far as the remarks of the parties taking an interest in the discussions went, as to practice in collieries, it would appear that this plan would be found not to be in any way applicable to the getting of coal, however it might be used in exploring dangerous or suspected places. Again, as regards the DAVY lamp, as originally constructed, with the single cylinder of wire gauze, there can be no doubt but that it is calculated to allow the gas, or vapour, to pass through the flame, or any spark or ember passing through the gauze, however minute, coming in contact with the foul air—the double wire gauze, or shade, as we have already observed, however increased in safety, does not afford a sufficient light to enable the collier to work—while to Dr. CLANNY's improved safety lamp, the merit is undoubtedly due, of emitting an improved light, and lessening the chance of accident, by separating the foul gases from the flame, the only drawback being the liability of fracture of the glass to which it is subjected, while it is proposed to use talc in its stead, which is less brittle. This latter is a point, however, which would appear yet undecided—at the same time that the rapid improvements in the manufacture and annealing of glass, would lead us to believe, that with the protective guard applied, little apprehension need be entertained of any accident occurring. We have thus entered fully into the subject, as one to which more than ordinary importance is to be attached at the present moment, and more especially when we reflect on the lamentable loss of life which occurred at the Risca Colliery, where the DAVY lamp was used;—an inquiry into which, although instituted by Government, appears as yet not to have been attended with any beneficial results; while we hope that the time is not far distant, when the Legislature will consider the collier not too humble to merit the attention of the Members of both Houses of Parliament, many of whom, it is to be remembered, are, in a measure, supported by his labour.

In recording the loss of human life, sustained in mines and collieries, it does not often become our duty to notice many fatal accidents in the mines of Cornwall and Devon, when the mining population of the two counties, compared with other districts, is considered; but, unhappily, there is one mine in which a fatality appears to be attendant upon her immense riches: for, within the last 12 months, several lives have been sacrificed in Wheal Maria Mine. In our account of "Accidents in Mines," in another column of the present Number, we have recorded the deaths of two men, and the serious injury sustained by two others, by the falling in of a quantity of earth in a level in which they were working. The names of the two killed are LUCAS and DOWN—the former leaving a wife and three children, and the latter a single man. We doubt not but that every precaution for the security of human life is being exercised in the extensive operations carried on there by the agents of the mine, but where such an immense chasm is open to the very surface, in the extraction of that extraordinary deposit of ores, and the looseness of the country through which the lodes run, exist, too much caution cannot be observed. Although ample provision may be made for the widow and the fatherless—although we may sympathise with the bereaved, or lament the premature death of the departed—it does not bring back the husband, the parent, or the son; while it, however, loudly calls upon the Legislature to adopt that measure we have so long advocated—a bill for the "Prevention of Accidents in Mines and Collieries."

The verdict of the jury, in the case WOOLMER *v.* TOBY, briefly noticed in another column, has given rise to many observations, and much speculation as to the result—while many of the companies defunct, appear to have become resuscitated, and the revenue has every promise of an increase from the number of circulars which are in course of transmission, from the several provisional committees, to the numerous allottees, who have forgotten, or neglected, to comply with the call made on them, for the payment of their respective deposits, or, at least, their apportionment, of the expenses incurred. We believe there is but one opinion entertained by those learned in the law as to the verdict, which is—that such cannot be sustained, and that a new trial, which will be moved for, will upset the verdict given in the present instance. On this point it is not for us to indulge, or indeed to offer an opinion, as a verdict has been under the direction of the Judge, who, however, reserved the several points raised by the parties dependant on the cause, as to their liability incurred by the applicant for shares under the several points raised. That a new trial, and a different decision, will be arrived at, we believe, little or no doubt exists; but it would be premature, were we to enter into those points which must needs form subject of legal decision.

PRICE OF IRON IN FRANCE.—From St. Dizier we are informed, that the proprietors of several of the high furnaces have sold the produce of their manufacture up to the end of May, 1847. The amount of these sales is about 10,000,000 lbs., at the price of 7*l.* 4s. 2d. to 7*l.* 8s. 4d.—the metal taken at the furnace. Other sales of white cast metal, deliverable at Gray, have also been entered into with the south at 8*l.* 8s. 4d. The expense of carriage being at the charge of the sellers, 1*l.*, the price of 7*l.* 8s. 4d., for the cast metal of the Marne, has been well established. The demands for beaten iron, made by coal, are very limited,—and the forges, which have been hitherto in full work, are beginning to want samples. The forge-masters have, however, announced their intention of maintaining the prices at 16*l.* This will be easy enough for the furnaces in full blast, or partly so—but those that have already a full stock on hand will, in all probability, give way a little, so as to keep up their connection. The price of flattened iron, delivered at St. Dizier, maintains itself at 14*l.* 8s. 4d. to 14*l.* 16s. 8d., according to the importance of the demands, which, it appears, are on the increase, although the iron trade generally in France is in a languid state, and not half the furnaces in full blast—the furnace and forgemasters waiting, with much interest, to see the decision the Government and the Chambers will come to, respecting the admission of British and other foreign iron, and cast metal for shipbuilding, &c.

THE IRON TRADE IN BELGIUM.—At the last meeting of the forgemasters, held at Namur on the 3d of March, it was decided that a rise should take place, to come into operation on the 15th inst. Cast metal, made by coke, was increased by 4s. 2d. per 1000 lbs., which brings the price of hard iron to 5*l.* 8s. 4d. per 1000 lbs., middling 5*l.*, and soft 4*l.* 12s. 6d., delivered at their destination—10d. discount being allowed when taken at the furnace. Flattened iron in bars, made by coke, has also risen 10d. the 2 cwts.—that is to say, No. 1 to 1*l.* 10s., No. 2 to 1*l.* 3s. 4d., and No. 3 to 1*l.* 5s.—delivered free at Namur, Charleroi, Mons, Brussels, Louvain, Tirlemont, Malines, Atwerp, Ghent, and St. Trond. These prices are obligatory for all localities beyond those designated. Notwithstanding the general tendency to a rise they have maintained, the cast metal, made by wood, in the department of Entre-Sambre and Meuse, at 15s. 6d.—that of the Meuse, 15s. Moulding metal, made by coke—No. 1, 14s.; No. 2, 13s.; and No. 3, 12s. 6d.; refining metal, 10s. the 2 cwts.—taken at the furnace, with a reduction of 5d. for the exports ions to France. The iron bandages, made by wood, in the Entre-Sambre and Meuse, 1*l.* 15s. the 2 cwts.; bars, &c., 1*l.* 12s. 6d. The iron made by wood in the Meuse, for bandages or hoops, 1*l.* 10s.; bars for splitting, &c., 1*l.* 9s. 2d.—taken to the same destination as the iron made by coke. The iron trade generally throughout Belgium is improving rapidly, and the furnaces are chiefly in full blast, —and extensive operations are expected to take place during the present year, as the demand for iron and cast metal is daily increasing.

MINING IN BELGIUM AND PRUSSIA—ZINC AND LEAD.

In several previous Numbers of the *Mining Journal*, we have alluded to the progress making in mining enterprise in Belgium, and now give the following article, extracted from the *Journal des Chemins de Fer*, on the advance of metallurgy generally:—

In reference to the zinc mines of the VIEILLE MONTAGNE, which was constituted into a company only in 1837, by the heirs of M. Mosselmann, we find that they only produced at that period 25,000,000 lbs., derived as follows: About 5,000,000 lbs. from Poland and Cracow; 16,000,000 lbs. from Prussian Silesia; and 4,000,000 lbs. from the Vieille Montagne and Belgium. The consumption in France, England, Belgium, as well as in Poland and Prussia, scarcely absorbed that quantity, however small; and the current price of rough zinc did not exceed, except in particular cases, more than 1*l.* 8s. 4d. to 1*l.* 12s. 6d. the 200 lbs. Since that period, the demand has progressed in such a proportion, that the production successively developed itself by the charge of high and more advantageous prices, and rose again in 1845 to upwards of 72,000,000 lbs., derived as follows:—6,000,000 from Poland; 2,400,000 from Cracow; 38,000,000 from Silesia; 5,000,000 from Stolberg; 11,000,000 from the Vieille Montagne; 4,000,000 from Corphalia, &c.; 5,000,000 from England (zinc of blende); 2,000,000 (the various productions), from Rhenish Prussia—making a total of 73,400,000 lbs. Therefore, within eight years, there has been an increase of more than 46,000,000 lbs., or nearly 200 per cent. on the produce of 1837; and, notwithstanding that the manufacture of it has tripled, the consumption has increased accordingly to the production—so that the quantity in warehouse at the end of 1845, was less than in 1837. The current price of rough zinc, which, in 1837, was scarcely 1*l.* 12s. 6d., after having increased in eight years to 4*l.*, is easily maintained at the present day at about 2*l.* 8s. 4d. the 2 cwts. What causes zinc to have a speciality among other metals is, that the beds of calamine, or carbonate of zinc, are very scarce, and have not been discovered, up to the present time, in sufficient quantity deserving of attention, except in two parts of the north.—1st, at the angle of the junction of Prussian Silesia, with the kingdom of Poland, and the free state of Cracow. —2d, near Liege and Aix-la-Chapelle, in a close circumference, which is cut by the frontier line of Prussia and Belgium. At present, the total consumption of zinc amounts to about 74,000,000 lbs., distributed as follows: —Poland and Cracow consume 2,000,000; Russia, 2,000,000; Austria, 1,000,000; Prussia, 8,000,000; the Rhenish provinces, 2,000,000; Belgium, 6,000,000; America, Italy, &c. (exported *viâ* Antwerp), 4,000,000; France, 86,000,000; England, 15,000,000; and India, 8,000,000 lbs. This quantity will greatly increase in a few years, as zinc is becoming into general use for so many purposes—such as mixing with copper and brass, the sheeting of ships, covering of every description of buildings, &c. Among the companies, which we must specially notice, whose furnaces are in full operation, is the Nouvelle Montagne, the Vieille Montagne, and Stolberg. Besides these principal ones, two other companies have been formed—the one under the name of ANTONIUS, in the environs of Bonn, in Prussia, for treating the ores of blende; the other named the GRANDE MONTAGNE, in the vicinity of Liege, for the treating of calamine and lead. There is also a talk of bringing out in shares that of Corfalia, a zinc work, also in Belgium, between Namur and Huy. The Vieille Montagne originated as above stated, by the heirs of M. Mosselman, was established by a capital of 220,000*l.* in 1837,—but which, by loans from the bank of Belgium, and other sums raised, increased it to about 360,000*l.*; out of which there was 16,720*l.* expended for the furnace or works at Bray. From the excellent management of this company, they were able to pay off at the end of 1843, the loan made from the Bank of Belgium, as well as to cover the expenses of Bray—so that, at the commencement of 1844, 5040 shares of the company (of 40*l.* each), represented in machinery, buildings, &c., a value of about 360,000*l.*; and the dividends, notwithstanding the loans and other expenses, were 5 per cent. in 1837, and gradually increased up to (in 1844) 20 per cent. This prosperous state of the company of the Vieille Montagne accounts, that the shares, issued in 1837 at a nominal capital of 40*l.* each, are at the present moment selling at 280*l.* Notwithstanding, in praising the excellent manner in which this concern has been conducted, and admitting the richness and abundance of the zinc mines of the Vieille Montagne, it must not be forgotten that the present company was only constituted for 19 years; at the expiration of that period—the end of 1856—it will be dissolved,—as there is nothing in their statutes, or laws, which announces that the society have the right to continue to exist. There is more, if we are well informed—the grant, or concession, of the mines of the Vieille Montagne, situated upon neutral ground, one-half belonging to Belgium and the other to Prussia, which was only granted to M. Mosselmann for a limited time; after which period the said concession returns, with all its property, to Belgium and Prussia, to be dispossessed of anew by these two states, as may most suit their interests. If this is the case, the company of the Vieille Montagne will be, at the close of 1856, dispossesed of the grant of these mines, and it will be obliged, at the expiration of the social contract, which at present unites the shareholders, to liquidate the whole it may hold in hand. It is, however, probable, that this will not be the case, and that the company will obtain a renewal of its lease, if not gratuitously, at least on very reasonable terms, and such as the Prussian Government always grants to existing establishments, who request to continue their useful works for the prosperity of the country.

The statutes of LA STOLBERG Company were approved of by the King of Prussia, on the 31st of December last. These mines are situated near Aix-la-Chapelle, and belong to the Metallurgic Company, were at first taken upon a lease of 30 years by M. de Sassenaye, on condition of paying an annual rental of 2000*l.*, and 500 tons of rough zinc, estimated at 16*l.* per ton. After some years of working, M. de Sassenaye, who assisted with funds from the house of Chauvitean, and that of J. Laffitte and Co., now A. Gouin and Co., was enabled to give to this undertaking a great extension, as he was resolved, in conjunction with his partners, to render himself the complete proprietor, so as to constitute it into a *Société Anonyme*. The value of the furnaces was estimated at 60,800*l.*, and by adding a coal bed, which was purchased from the heirs of Cockerill, and valued at 54,000*l.* —making a total of 122,000*l.* They originated a social capital together of 300,000*l.* The founders of the mines declared their profit to be, in 1845, the sum of 37,080*l.*, having been attained by the working and manufacture of zinc—the produce of coal, 8408*l.*; giving a total of 45,488*l.* The net profit, after deducting the amount paid to M. de Sassenaye, the special directors, board of management, &c., there remained a balance of 14,440*l.* There is no doubt that the shares of this company will soon gain a good premium. In a future article, we shall make some remarks on metallurgy.

It may be remembered that the Company of LA NOUVELLE MONTAGNE was formed for the purpose of working the zinc and lead mines of Engis, Prayon, and Verviers. This society was originally established by the Duke d'Aremberg and Messrs. Simonis, and its capital fixed at 3,000,000 fr., or 120,000*l.* Out of this sum, 72,000*l.* is the portion of the Duke d'Aremborg and Messrs. Simonis. The expenses incurred, which have been verified by the books of the company, amounted to 54,000*l.*, so that the greatest amount, which was apportioned to them as an indemnity for their labours and discoveries, was only 18,000*l.* The remainder of the social capital (48,000*l.*), was reserved integrally for the constructing of furnaces, and the necessary buildings. In this affair, there was no partiality or favour shown to the founders, no social charge to pay up, no debt to liquidate, nor any oppressive demand, for the remuneration of the directors, as the directors, administrators, or committee of management, and *commissaires*, have only a right altogether to 9 per cent. of the net profit.

The reports of the engineers of the Nouvelle Montagne, on the situation of the mines belonging to this company, have already stated, a year ago, that beds of calamine and galena existed in sufficient abundance to face for a long number of years an annual production of 8,000,000 lbs. of zinc, and 4,000,000 lbs. of lead. Since that period, the works of the mines have continued to display still further riches, which not only insures a good return for the company, but will enable it to give to its operations the greatest extension. The buildings, the progress of which were delayed in consequence of the rains of last year, are now nearly finished. There are already 24 new furnaces in full blast at Engis and Prayon; and, before the end of April next, there will be 16 more: 40 others will be successively erected, and the foundations are already laid down—so that, before the month of September, 80 zinc ovens will be in full activity. The great flattening machine, propelled by a powerful steam-engine, will then be in work. About the month of September, there will also be a steam-engine of 1000-horse power, erected near the lead bed, or mine of Verviers, to extract the water, and allow the working to be carried on upon a large scale in this seam, which M. Adam Lesoinne, professor of metallurgy at the School of Mines of Liege, compares it to the finest and richest beds of lead in Spain; and, lastly, the seams of coal which have been discovered within the limits of the concessions, or grants, to the Nouvelle Montagne, running parallel with the beds of ore, will be the means of gradually reducing the expense and price of zinc. It is now certain that its production is so rapidly established, as to insure that the net produce of the year, ending the 31st December, 1846, can be estimated at about 20 per cent. of the primitive capital of 40*l.* shares. In 1847, the production will be entirely developed, and the results may then be calculated as follows:—

Cost of 8,000,000 lbs. of zinc, at the price of 1*l.* the 2 cwts.	£40,000
4,000,000 lbs. of lead, at the price of 16s. the 2 cwts.	16,000
Total	£56,000
Sale of 5,000,000 lbs. of zinc, in ingots of zinc, at 2*l.* 4s. 2d. the 2 cwts.	£55,000
3,000,000 lbs. of flattened zinc, at 2*l.* 12s. 6d. the 2 cwts.	39,000
400,000 lbs. of lead, in ingots, at 2*l.* the 2 cwts.	40,000
Total	£134,000

The profit, therefore, will be 78,000*l.* per annum. Amount of shares raised on the shareholders, 6000*l.*, at 5 per cent., there will remain a net profit of 72,000*l.*, divided as follows:—The raising of 25 per cent., conformably to the statutes, of which there is 9 per cent. for the chairman, the board of management, and the *commissaires*, and 16 per cent. as reserve (18,000*l.*); dividend to be paid to the shareholders, 54,000*l.*—so that, by adding the 6,000*l.* of interest, the shareholders will have to divide among themselves, 60,000*l.*, either by 3000 shares, of 20*l.* each, or 50 per cent. per annum. The current price of the shares of the Nouvelle Montagne is firm at 120*l.* (80*l.* premium). The high premium that these shares bear in the market is not surprising, considering the company are about realising such brilliant results; and one important point is, that the concessions, or grants, of these mines are made for perpetuity.

THE METALLURGIC INDUSTRY OF AUSTRIA.

The mineral resources of Austria are but very little known in this country, although the Austrian empire is very rich in minerals of every description. The greater portion of the metal, the fossil fuel, salt, earth, or clay, for the manufacture of porcelain and the other potteries, pyrites, nickel ore, cobalt, grenates, &c., form, by their union, an extensive list of minerals, rarely to be found in any other country. The following is an official return of the principal metals produced in 1845—viz.:

Iron and cast metal	lb 305,000,000	Mercury	lb 370,000
Lead and lead productions	16,000,000	Productions from cobalt & nickel	240,000
Copper	5,600,000	Tin	190,000
Zinc	1,000,000	Silver	56,000
Antimony	770,000	Gold	3,800

She also possesses very extensive coal beds, but the working of them has not yet been carried to any extent, there being a very great abundance of wood, and at low prices. Notwithstanding, however, within the last few years, wood is becoming rather more scarce and dearer, which indicates that trade generally is improving, and no doubt the state and the large proprietors of mines will be soon obliged to make great exertions in increasing the production of mineral fuel. At the last exposition, about 50 of the exhibitors sent to Vienna numerous samples of coal, anthracite, and lignite. The production of coal in Austria during the last few years is estimated at 600,000 tons, which will, no doubt, rapidly increase. It is well known that in Austria the working of mines of every description is a prerogative of the state, which sometimes, under particular circumstances, cedes its regal right to private individuals; and these works, in many localities, form a part of the lordly prerogatives of a great number of noble families. This State of things is not without inconvenience, as it places the materials of first necessity, such as iron and coal, in the hands of the privileged, who can limit its production, and establish, without the fear of competition, what prices they may think proper. It is, however, by the direct intervention of sovereigns, that mineral industry has so developed itself, and become prosperous in the extensive metalliferous beds of Saxony, Austria, and Russia. All the provinces of the Austrian monarchy, with the exception of the provinces of Venice, along the coast, and Dalmatia, are productive of iron, and we can divide into three large zones the countries which furnish this metal:—1. The country of the Alps, which includes Upper and Lower Austria, Styria, Carinthia, Tyrol, and Lombardy.—2. The country of the Sudétes, which comprises Bohemia, Moravia, and Austrian Silesia.—3. The country of the Karpates, which includes Gallicia, Hungary, Transylvania, and the military provinces. The most important of these countries for iron, as for the quality of its metallurgic productions, is Styria—as it furnishes annually 336,000 cwts. of iron. According to the statistical returns of the iron industry in Austria, it appears that in 1841 there were 226 high furnaces throughout the empire, 32 furnaces at Kupol (Kupolösen), 835 forges for iron and steel, with 1955 fires, and 1538 hammers or anvils, 15 puddling forges, with 54 puddling ovens, 38 flattening apparatus, and 32 reheating ovens, 40 flattening machines, with 112 pair of cylinders, 94 reheating ovens, 9 steel melting ovens, and 31 mechanical establishments. The produce was as follows:—Rough metal (reheisen), 2,192,540 Austrian cwts.; cast metal, 364,130; iron in bars, 1,375,659;—of which 182,452 cwts. were flattened iron; tin, 11,056; iron plates, 111,644; and steel, 208,379. In 1843, the production of cast metal was 2,351,280 cwts.; and moulded metal, 369,342 cwts. The total production of cast-iron, or metal, is estimated at 14,000,000 florins (2s. 3d. sterling); the whole produce of the iron industry is stated at 32,000,000 florins. Although the production of iron in Austria presents each year a considerable increase, it is far from being in proportion, according to the abundance of iron ore of excellent quality, which is found in nearly every province of the empire. The peculiar organisation of the metallurgic industry in Austria may account, in a great measure, for this state of things—as the Government, as before stated, is the great monopoliser of iron. Its forges, to the number of 33, furnish beyond a quarter of the forged iron of the country, The total value of the produce of iron by the imperial furnaces—the most important of which are situated in Styria and Hungary —is estimated at 4,293,800 florins. Not only does this organisation create an unfair competition to private enterprise, but it has the inconvenience of confining the mineral riches of the country to agents, who have but a trifling interest in the extraction of the produce they afford, and the increase of working them.

The admission of iron into Austria, like many other products, is only permitted under a special permission—therefore, the imports of it in 1841 amounted only to the value of 400,000 florins. The value of productions exported was 4,500,000 florins, divided as follows:—Articles in forged iron, and iron trinketry, 2,400,000 florins; cast steel, and cemented, 960,000 florins; Common iron, and in bars, 570,000 florins; iron wire, and steel, 160,000 florins; fine lock works, 100,000 florins. The exportation of the first of those articles has very little varied for the last 12 years, being from 1831 to 1841, only 93,751 cwts.; in 1842, 94,465 cwts.; in 1843, 94,581. The chief trade of iron in Austria is carried on with the states of the Zollverein, notwithstanding the steels of Styria, its scythes and agricultural instruments are sought for in every part of the globe, and would no doubt cause many most active transactions, if the Custom-house system of Austria did not throw an obstacle in the way. The manufacture of scythes and sycles is one of the most remarkable and ancient industries of Austria. Styria, the classical land of scythes, has for a long time supplied nearly all the markets of the world; and although the fabrication of them has greatly progressed in other countries, particularly France, Prussia, and Russia, the production of them in Austria has not at all diminished. The following is the number made:—3,965,000 scythes of different sizes, 1,159,000 sycles, and 83,000 knives, or shears for cutting straw,—the weight of these implements being 83,226 cwts., value 2,200,000 florins. The three parts of these articles are exported,—of which the Zollverein received a large portion. There are no less than 175 establishments, in which scythes are made, without including those of Hungary. Each establishment can only make a limited number of them, must only have four fires—the first of which serves to purify the iron and steel; the second, for forging the scythe by a large anvil, which is worked generally by a hydraulic wheel; the third, to work it by the small hammer, to make the ridge, and mounting it; and the last one, for giving it the temper required. A single establishment can by law only make 50 tons of scythes per annum, each ton containing from 1000 to 1800 different pieces, according to their size. They, however, can double this quantity, by having two brigades or change of workmen, and by adopting in their work more methodical order. They attach a great importance, so that the same work should always be executed in each shop in the same manner, and by the same workmen,—as they have found in Austria, that a quality of an article, always made the same, is the best guarantee of success, and the duration of every industry of this nature. The Austrians complain very much of the manufactures of Prussia, which make inferior scythes, and adopt the best marks of Styria, causing a great injury to that part of the country.

The above will show the progress making in mining industry in that rich empire, which promises, in a few years, to be a most prosperous resource.

ON THE MINING LAWS OF FRANCE.

As some knowledge of the various laws which regulate mining in various parts of the world, must be interesting, and indeed useful, to all persons engaged in mining pursuits, we insert the following compendium of those of France, extracted from a paper, communicated by Sir Charles Lemon, Bart., F.R.S., F.G.S., &c., to the Geological Society of Cornwall, and published in their last annual report. It appears that Charles the VI., by an edict in 1413, empowered all miners and others to examine, seek for, and open mines, in all places where they may deem it likely they may be found, and to extract the minerals therefrom; and if a man opened a mine in his own land, himself and all his labourers became exempt from all taxes and tolls, and all subsidies and contributions whatsoever. Louis the XI., in 1470, also granted power to search for mineral, which several Parliaments confirmed, under the following modifications:—1. That no one, without the consent of the proprietor of the surface, or by warrant of the judge, the parties having been heard, could open any mines on lands, bearing cultivated crops or fruits, in woods or in gardens.—2. That the search being made, by warrant of the judge, should be prosecuted in presence of the Procureur du Roi, and by the proprietor himself.—3. That the indemnity to be paid to the proprietor should he determined by the Procureur du Roi, and by the Master-General of Mines.—4. That the suppression of the discovery of any mine should render the guilty parties liable to no other punishment than a loss of the profits, which might be expected to result during 10 years' working. Up to the beginning of the 17th century, the Royal tenth applied not only to mines, but to all mineral works and quarries. An edict of Henry II., in 1552, comprises all metals, salt, coal, turf, and generally all other substances whatever, which may be extracted from the interior of the earth, from which any profit may arise. Peat, stone, and earthy substances, extracted from quarries, ceased to be subject to any impost, as was also coal; and, in 1698, this latter mineral was excepted from all regulations respecting grants and licenses, so that the proprietors of the soil were enabled to work the coal mines without going through the formalities required in other mines; but this freedom being found to produce an injurious effect, a decree of council, in 1774, again replaced the coal mines under the control of Government, and prohibited every proprietor whose land might contain coal, from working it without the license of the Comptroller-General of Finance. Mines of iron ore were subject to many important restrictions. An edict of 1626, subjected to a certain duty, according to the marks, all iron and steel, both imported and from French mines; and in 1680, the duties were fixed at 13 sous 6 deniers per quintal—now 18 sous per quintal, on iron wares, and 20 sous per quintal on steel; and this edict also compelled proprietors, on whose lands iron ore existed, to work them as often as the masters of the nearest forges required them, unless they built furnaces themselves; and failing, the masters of those already existing, were empowered to extract the ores for their own consumption, paying at the rate of 2 sous 6 deniers per 500 lbs. Such was the state of the ancient laws in France relative to mining, which it is not necessary further to go into, as the law of April, 1810, completely remodelled the existing laws, and established a new code, which is now in existence, and in full operation. By this enactment, all mineral property is classed under three heads—quarries, minerals, and mines.

The proprietor of the land has full property in quarries as long as they are open to the sky, and he may work them without asking permission; but, if worked in galleries, they then become subject to the superintendence of the administration. Proprietors of mines pay to the state two separate charges; one fixed, equal to 10 fr. for every square kilometre contained in the grant, and the other proportional—viz., a certain part of the net proceeds, which never exceeds a twentieth. The police of mines, and all measures necessary for the public security, for the safety of miners, and for the preservation of houses, walls, and other property, are all subject to the prefect, as in matters relating to the roads; and if for any reason a mine is suspended, so as to create alarm, lest the supply should be insufficient, the Government, in such case, interferes, according to prescribed forms. Thus the law of 1810 does not encroach in any way on private property in land, beyond what is done in the civil code, and under the same conditions—viz., the exigencies of the public service. It takes nothing from the rights of property, except the sites which cannot be worked, otherwise than upon a general plan, so that it rather adds to the land's value, by attaching to it a certain right over the produce of the mines beneath. It converts, into a moderate payment out of *profits*, the ancient tribute levied on the produce. It perpetuates and fixes the subterranean property thus created, and so offers inducements for the employment of capital in mining pursuits: it gives to the administration the power of protection, and, at the same time, imposes upon it the duty of watching over the safety of the miners—of protecting the surface, while it promotes skilful working—and of providing the due supply of mineral produce to the consumer; while it assigns due limits to the administrative and judicial powers, by giving to one a prompt and vigorous action, and to the other the adjudication in private disputes, and the prosecution and punishment of crime.

In 1791, during the discussion in the French Council on the new code of subterranean law, the Emperor gave his opinion to the following effect: —"The discovery of a mine creates a new property—an Act of the sovereign power, therefore, becomes necessary to enable him, who has made the discovery, to enjoy the possession, and this Act ought, at the same time, to regulate his mode of using it; but the proprietor of the soil has also certain rights, with respect to the newly-created property, the claim for which the same public Act should in some way liquidate. Thus a portion of the produce should be given to him as an acknowledgment, which portion should be measured by the extent of surface to be occupied, of which he is proprietor. Care, however, should be taken not to grant the right of search to any adventurer, not having sufficient grounds for his undertaking. Prudence requires that, in the first place, a report of the Council of Mines should be made, declaring that, in their judgment, minerals do really exist in that locality, and that there are grounds to justify the search for them."

In the law which came into operation in 1810, before mentioned, these principles are embodied, and its general details may be summed up as follows:—"The proprietor of the surface has the right to search his own property, whenever he pleases; but he loses his right when his property becomes included in a grant which has been made to another person. No one can prosecute a search in lands which do not belong to himself, without the authority of Government. This authority shall be given in a report of the administration of the mines (the proprietor having been heard), and subject to a preliminary arrangement, as to the compensation to the proprietor. No right of search can give a power to bore or sink shafts, or drive levels in walled inclosures, courts, or gardens, or in lands adjoining. The indemnity due to the proprietor shall be calculated on the scale of double the net value of the produce of the land, for the year during which it is occupied; at the end of which, it shall be restored to the same state as before the search. The discoverer of a mine has only a contingent right to the grant of such mine—if the preference shall not be given to him, he shall have a claim on the grantee for an indemnity, which shall be determined by the grant itself; and all indemnities, claimed on the ground of works of search made before the regular grant, shall be regulated by the council of the prefecture." Comparing these definitions with those of four or five centuries back, it is curious to observe the identity of ideas on the subject of searching for mineral wealth, which mark the two periods, and which regulations, established in the intervening time, show to have been continuous,—and while it thus clearly establishes the fact, that many parts of France have for ages been known to be rich in metallic produce, it causes a feeling of astonishment that, even at the present day, she is far behind her neighbours in its development.

COAL MINE OF ST. LAURS.—This mine, situated in the department of the two Sevres, which has only been opened within the few last years, now furnishes the greater portion of the coal necessary for the furnaces, forges, and general industry of the population of that district. This coal bed is very rich, and the mineral fuel of a most excellent quality, being so abundant that it could furnish a sufficient supply for carbonisation, and the making of horse shoes, and all smiths' purposes. The late contract offered for the furnishing of 12,000 hectolitres of coal for the making of coke, which took place at Rochefort last month in the naval department of that port, and royal arsenal, was concluded with the proprietors of the mine of St. Laurs. There is the greatest energy making in nearly every department where coal beds exist, to work them as early as possible, so as to counteract the monopolising system now forming in France, not only in the Loire, Saint Etienne, Rive de Giers, and Burgundy, but other districts where the moneyocracy has gained such an ascendancy in usurping mining industry.

Original Correspondence.

THE BLACK LEAD TRADE.

SIR,—Seeing the letter of your correspondent "Plumbago," and your own request for any information as regards the black lead trade, I have inclosed an extract from the "Proceedings of the Geological Society," which I think will answer one part of his inquiry. About the middle of last year a cargo of plumbago was brought to this port from some part of Davis' Straits; but I have not been able to learn what price it was sold for. It was stated not to be so good as the Cumberland, but that it existed in great abundance.—J. S.: *Liverpool, March* 20.

ON A METHOD OF FORMING THE DUST OF GRAPHITE INTO A SOLID MASS. BY W. BROCKEDON, ESQ.

The graphite, or black lead of commerce, of sufficiently good quality to be used for pencils, has become very scarce—only a small quantity being now raised in the Borrodale Mines, and that of inferior quality; so that what has been sold lately is part of a large supply obtained 40 years ago. This quantity having been picked over and over again, the former reputation of the Cumberland graphite is now no longer sustained, and its impurity is detected by artists, in consequence of the grit which it often contains. The author of this paper has contrived a method, by which the fine dust of the best parts of the graphite may be recomposed into a mass as dense and compact, and of as close a texture, as the best quality found in the mine. To obtain this, the dust procured from sawing graphite into thin plates, or veneers, to be enclosed in the cedar, is carefully washed and ground, and, by repeated operations, is rendered pure and free from grit, being finally lifted through spaces less than $\frac{1}{30000}$th part of a square inch. Thus prepared, the powder is placed under a powerful press on a strong die, or bed of steel, with air-tight fittings. The air is then pumped from the dust, and, while thus free from air, a plunger descends upon it, and it becomes solidified. The power employed to perform the operation is estimated at 1000 tons, several blows having been given each of this power. Specimens of graphite thus prepared from the dust of the best Cumberland black lead were exhibited—one of them a block in a condition to be cut into thin plates for pencils; another a broken piece, showing the same smooth surface on both sides of the line of fracture—an appearance often observed in native graphite.

COAL AND IRON TRADES OF FRANCE AND BELGIUM.

SIR,—Having noticed, in your valuable Journal, for some weeks, the interesting comments on the rapid consumption of coals, iron, &c., in France, and of the activity evinced by capitalists, particularly by Messrs. Rothschild, I would inquire if the purchases spoken of have any connection with the mines said to have been purchased some time ago by the Luxembourg Railway; and if not beyond your limits, *I*, as well as a large number of your readers, would be interested by a description of the principal mines in Belgium, and the line of communication the produce would be likely to take in being conveyed to France, which I suppose is where the great consumption will in future be, as indeed it at present is.

London, March 23. A CONSTANT READER.

GREENHOW'S GEOMETRICAL RAILWAY.

SIR,—In a letter, which appeared in the *Mining Journal* of last week, Mr. R. Mushet states, in regard to the geometrical railway, "That neither of the contending parties clearly comprehend the nature of the question before them—centrifugal force, and the force of resilience, having been confounded together." Now, had Mr. Mushet read all the papers I have written on the subject, and which he ought to have done, before giving so decided an opinion, more especially the one read by me at the Society of Arts, on the evening of the 18th of February, he would have seen that the centrifugal force, and that of resilience, had *not* been confounded together; because I clearly define what the centrifugal force is, and next refer to the *rebound* from rail to rail, which, once commenced, will gain strength at every blow, until it is sufficient to throw the train off the line. Though I did not use the term resilience, in order that I might be understood by all parties, yet the rebound I referred to is precisely the same thing, under a more familiar name. Mr. Mushet also says, when a locomotive is thrown off the rails, it is the force of resilience, and not the centrifugal force, which causes the disaster. Now, I think I shall be able to convince him, that he is under a mistake here. When a body is put in very rapid motion, the tendency of the centrifugal force, created by the propulsion, is to make it move in a directly straight line, not only as regards a deviation to the right or left, but also horizontally; and when any inequality in the rail causes a rebound (or, philosophically speaking, creates resilience,) the motion becomes a compound of the two forces—the centrifugal, being diverted from its direct course in a degree, having relation to the velocity of the motion, and the strength of the rebound, and, should the obstacle be of sufficient magnitude, the locomotive will be thrown off the rail, not by the rebound or resilience alone, but by the combined strength of the two forces, neither of which unaided by the other, could have effected the result. This rebound is much more likely to be established when moving at a high velocity along a straight line, than when going round a curve; because, in the latter case, the whole resistance to the directly straight progress of the locomotive is offered by the outside rail—the flange of the wheel constantly grinding and cutting into it, in its attempt to move off at a tangent—but never *rebounding*, because the action between the flange and the rail is not of a nature to cause a rebound, being a continual resistance offered to an unceasing pressure; and the danger to be apprehended is from the rail giving way, or any impediment occuring, to afford sufficient fulcrum to lift the wheel on the rail, which, with the flat rail and angular flange, is much more likely to happen, than with the convex rail and concave wheel.

On a straight line, on the contrary, any of the incidental occurrences, referred to in my paper, will cause a rebound, or create resilience—such as a chair being loose, a sleeper having sunk, the unequal resistance of the atmosphere, caused by leaving a tunnel, or passing swiftly on to, or off from, an embankment, will any of them cause the pressure to be thrown unequally on the rails, when the reaction will create resilience, or rebound, which, by diverting the centrifugal force from a straight line, will cause the rebound from rail to rail, which generally ends in an overthrow. Thus I arrive at precisely the same result as Mr. Mushet, respecting the rebound, or resilience. He is in error about the wheels "leaning inwardly;" they do not do so: it is the *spokes* of the wheels which converge from the circumference to the axes at an angle of 22½°, within the perpendicular of the centre of the rail—thus the wheel forms a cone, the extreme edge of which rests upon the rail, in such a manner that it stands perpendicularly on it, and, in revolving, passes along in precisely the same manner it would do were the spokes perpendicular; the use of the conical shape being to resist the attempt of the wheel to withdraw from the rail, on meeting with any obstacle or impediment, which it would be inclined to do, was the spoke perpendicular. I trust this will satisfy Mr. Mushet, that there will neither be a force to thrust the rails apart, nor any angular friction in the gudgeons. I will conclude, by merely thanking Mr. Mushet for the candid and straightforward way in which he has stated his opinions, and beg to subscribe myself your obedient servant,—C. H. GREENHOW: *Cecil-street, Strand, March* 23.

GREENHOW'S GEOMETRICAL RAILWAY—LETTER II.

SIR,—In the conclusion of Mr. Greenhow's paper, read at Newcastle, upon the 3d of March, he alludes to the centrifugal and centripetal forces, as referred to an arc of the earth's surface, and the centre of the earth; and he affirms that the centrifugal force, at a high velocity, becomes sufficient to raise, not the whole of the wheels, from the surface of the rails, but first one set and then the other—that is to say, first one side of each carriage, and then the other. Now, the whole weight of an ordinary railway carriage is supported by two sets of wheels, one set upon each side of the carriage, and Mr. Greenhow will admit that the whole weight of the carriage is almost exactly divided, between two sets of wheels—or, in other words, if the carriage weighs 10 tons, then each set of wheels sustains, and, therefore, presses, the rails with a weight, or centripetal force, of 5 tons; therefore, each set of wheels is kept down upon the rails by the same amount of centripetal force, constantly exerted during any given portion of time. When, therefore, the centrifugal force, acting in the direction of a tangent to the earth's surface, at every point in the line of railway, shall, by augmentation of the velocity of any carriage moving upon that line of rails, cause the centrifugal force to exceed the centripetal, so as to raise one set of wheels, and, therefore, one side of a carriage, from the rails; the same centrifugal force will act equally and simultaneously upon the other set of wheels, and, consequently, upon the other side of the carriage—and the whole carriage will take flight, until the resistance of the air shall have diminished the velocity, and, therefore, the centrifugal force of the carriage, so as to allow the centripetal force again to bring the carriage to the earth's surface. But, since the centrifugal and centripetal forces act in right lines, whose direction causes them to intersect each other at right angles, at each point of contact of the wheels with the rails; it follows, that every force, compounded of the centrifugal and centripetal forces, must, as long as these latter forces continue finite, act in the direction of a line included by the angle, formed by the directions of these forces—viz., the radius of the earth at the point of contact, and the tangent to the earth's surface at that point; and hence, whilst the centrifugal force, and, therefore, the velocity of the carriage, continue finite, the direction of the compound force, which determines the direction of the moving body, can never become that of a tangent to the arc of the earth's surface, represented by a line of railway; therefore, only a centrifugal force, infinitely great, and resulting from an infinite velocity of the moving body, can at any time elevate a railway carriage from the line of rails. With a velocity, then, of 100 to 150 ft. per second, the tendency of the centrifugal force, acting at the extremity of a radius of nearly 4000 miles, is utterly insignificant, and insufficient to cause any disturbance to the permanent action of the centripetal force. The elevation of the wheels, first at one side and then at the other, arises from two causes—first, the misapplication of the moving power, applied through the medium of the driving wheels; and, next, from the elastic force, by which each deflected rail, in recovering its position, after the passage of one wheel, acts upon the next succeeding wheel. The adoption of convex rails and concave wheel tyres will effect a great improvement in the safety of railway locomotion, but, until the rails themselves are laid down and framed, so as to prevent deflection, under the weight of any carriage, there can be no security against the carriages getting off the rails. Substitute concrete for ballast as a basis for the longitudinal sleepers, and adopt cast-iron sleepers instead of the present Kyanised humbug, for the support of the wrought-iron rails, imbedding the rails themselves in grooves left for that purpose in the cast-iron sleepers, and retaining them in these grooves by means of lead or iron cement, which would be far cheaper; and then, with round rail surfaces and hollow wheel tyres, a degree of safety will be attained, which at present is unknown.—ROBERT MUSHET: *Coleford, March* 23.

PARSEY'S COMPRESSED AIR ENGINE.

SIR,—My object in addressing you is to give a popular demonstration of the chief fallacies comprised in Mr. Parsey's compressed air engine system of railway propulsion, as I consider the few exposures of it that have hitherto been made, have been of rather too purely a scientific character for the generality of readers, who, nevertheless, should be put upon their guard against all such quackeries, for the disappointment resulting from the impossibility of practically making good their pretensions, oftentimes operates seriously to the prejudice of really valuable inventions, by throwing a jealous distrust in the way of their being taken up and appreciated. With this view, and with this object alone, disclaiming all enmity or illiberal feeling towards Mr. Parsey, I beg your indulgence while I submit the following remarks:—

It is a familiar law of pneumatics, that the expansive force of air is exactly in an inverse ratio to the space a given quantity is made to occupy—thus, if 100 measures of atmospheric air be compressed into the space of 50 measures, its expansive force will be doubled; if into 25, it will be quadrupled; if again into 12½, it will become eightfold; and so on—by every additional amount of compression, a corresponding additional amount of power is stored up; and the law holds equally good of the reverse—thus, if eight measures of air be compressed into the space of one measure, they will possess a certain degree of expansive force; if they are permitted to occupy the space of two measures, this force will be reduced to one-half; if of four measures, it will be reduced to one quarter; and lastly, if they are allowed to occupy their original space of eight measures, they will altogether lose the artificial expansive force originally communicated to them by their compression into one measure. It is clear from this, that if compressed air be allowed to expand in any given degree, just so much of the original power employed in its compression is wasted or lost as would be found necessary to restore it to its first higher state of density. In this view of the matter, compression is to air precisely in the same relation as caloric is to steam—namely, the cause of its possessing expansive force available as a motive power; remove from either the cause of its expansive force in any degree respectively, and its motive agency will be proportionably destroyed. There is always a certain amount of work due from the expansion of air of any given degree of density, to a lower state of density; and if proper arrangements be not made to secure the due performance of that work, loss of power, in the proportion before stated, is necessarily incurred; for example, if we take two reservoirs of equal capacity, and charge one of them with compressed air—say 100 lbs. to the square inch of surface—then, if by opening a communication between it and the other reservoir, we allow the compressed air contained in the one to expand into and fill the other, the force of the condensed air contained in both receivers will amount to no more than 50 lbs. to the square inch of surface, being a loss of 50 lbs., or exactly one-half on each square inch: we shall have the same quantity of air which was originally compressed, but with only half of its mechanical force remaining; and if we suppose the experiment carried a little further, by interposing between the two reservoirs any suitable apparatus, upon which the compressed air may act, without escaping, in the course of its expansion from one to the other, such as an ordinary working cylinder and piston,—the quantity of motive power communicated thereto, during the process, will be practically a proximate measure (minus the friction) of the amount of loss sustained. It is, therefore, obvious that, if mechanical power be communicated to air, simply by compressing it into a smaller compass than it naturally occupies under ordinary circumstances, then, in whatever degree its tendency to recover its natural condition by expansion, is subsequently permitted to exercise itself before using it as a motive power, in the same degree is that power vitiated or lost; and the more nearly it is permitted to approach its greatest limit of natural expansion, the more nearly will that power be altogether dissipated.

If what I have stated above be correct, and believe it to be incontrovertible, the startling fallacy of Mr. Parsey's proposal, of condensing air to something like 1000 lbs. to the square inch, and then allowing it to expand until it possesses a force of but 50 lbs. to the square inch, before using it as a motive power, will be at once apparent; by such a mode of proceeding, it is clear, from the principles I have stated, and the truth of which I have never known called in question, that full $\frac{19}{20}$ths, or 95 per cent., of the power, originally employed in compressing the air to 1000 lbs. per square inch, would be irretrievably wasted and lost by its subsequent reduction to 50 lbs.; for, of two equal quantities of air, if one be compressed to 1000 lbs., and the other to but 50 lbs. on the square inch, the former will have just 20 times the expansive force of the latter, and will be capable of doing just 20 times as much work. Now, I conceive that, to incur so enormous a loss, merely for the sake of getting rid of steam as a locomotive agent, without realising any other equivalent advantages, would be, as Dr. Franklin says, "Paying rather too much for our whistle."

What, let me ask, should we think of a builder, who, wishing to place a block of stone at an elevation of 5 ft., should, as a preliminary to doing so, think it necessary to raise it 100 ft., and tell us that in this there was no loss of power, or wasteful expenditure of labour? There are certain familiar epithets, that would come pat in their application to such a person; yet a proceeding of this kind, would be quite analagous to Mr. Parsey's proposed system of managing, or rather mismanaging, compressed air, and would be not one whit more ridiculous.

It is curious to observe, that the very portion of his apparatus, which constitutes his patent claim, is one chief part of the fallacy of his system—it is not merely useless, but positively mischievious; as it is by its instrumentality the preliminary wasteful expansion of the compressed air is permitted: I allude to his regulating valve and chamber; if, instead of this apparatus, means were devised whereby the compressed air should be permitted to exert its force expansively, and therefore efficiently, directly, and at once, into the working cylinders, from the reservoir (without undergoing intermediate expansion) through an air passage or orifice, so constructed as to permit of a gradual increase of capacity or extent from a very contracted diameter, in the first instance, when the compressed air possessed its highest power, to a diameter constantly proportioned to the increasing attenuation of the compressed air, so as to insure a tolerably equal supply of power to the working pistons, upon a compensating principle, a good deal of the fallacious character of Mr. Parsey's system would be avoided, though by no means the whole or even the greater of it. Between such an arrangement as this, and the fusee and mainspring of a watch, would that real analogy exist, which your correspondent, "Pneumatecus," mistakingly claims for Mr. Parsey's arrangement.

I have, so far, confined my remarks to the part of the fallacy most fatal to Mr. Parsey's proposed system—a system, which, if attempted to be put in practice, would be found nearly as efficient as fighting a sham battle with blank cartridge—but there are other fallacies and mistakes connected therewith which should not be overlooked. Another of your correspondents, "J. H.," has already mentioned the weight of air—a subject which he rightly conceives very pertinent to the question.

It is a popular idea, that air is an imponderable substance—that it is devoid of weight: "*as light as air*," is a proverbial expression; but it requires no great extent of scientific knowledge to be aware of the contrary. It has been accurately ascertained by Dr. Prout, that 100 cubic inches of atmospheric air, at a temperature of 60° Fah., and at the ordinary pressure of the atmosphere, weighs a small fraction more than 30 grains. Now, if we suppose the working cylinders of an air locomotive to be 14 in. in diameter, and 18 in. stroke, worked by air having a pressure of 60 pounds to the square inch of piston, and the driving wheels to be 6 ft. diameter (very favourable dimensions for Mr. Parsey), a few plain figures (no need for algebraic formula, as "Pneumaticus" repudiates them,) will show us, that to propel such a locomotive 30 miles, it would be necessary, on Mr. Parsey's system, to carry with it a volume of air, which will have a positive dead weight of 10 or 12 tons, or more; for it must be remembered, that the quantity of compressed air carried, and the degree of compression, must be such, as never to permit its elasticity to descend below the given working power—to say nothing of the extra supply it might be considered prudent to have in store to meet contingencies. Now this weight of air, together with that of a travelling reservoir of sufficient capacity and strength to contain it, without risk of a frightful explosion, would exceed, in an enormous degree, the weight of coke, water, and steam generators, requisite for producing steam to do the same amount of works in an ordinary locomotive, besides incurring a prodigiously increased risk of accidents.

I have already trespassed so much on your valuable space, that I must leave untouched the consideration of the loss resulting from the great amount of latent heat abstracted from the air compressed to so high a degree of density, and which would deteriorate its elastic force to a very serious extent. I must also leave unconsidered, the great loss of power due to the friction of apparatus, working sufficiently air tight to produce so vast an amount of compression; but I presume I have stated a sufficiency of facts and principles to convince any reasonable mind, that the estimate the total loss, given by one of the correspondents of the *Mechanics' Magazine*—namely, 90 per cent—is considerably within the mark.

Kensington, March 23. J. S. T.

PARSEY'S COMPRESSED AIR ENGINE.

SIR,—From not having seen any reply to my letter of the 23d ult. from your correspondent "An Engineer," on the subject of Parsey's compressed air engine, I presume he finds it difficult, if not impossible, to reconcile the disparity therein exhibited; I shall, therefore, proceed to point out the fallacies of the scheme, and particularly so, as applied to locomotive purposes. Before, however, I do this, I would premise, that I am not actuated by any interested motives, neither have I the slightest wish to injure the patentee; but simply, as the scheme has been so prominently brought before the notice of the public, I volunteer this exposition, in a friendly and candid spirit, under the impression, that it may possibly prevent serious pecuniary loss, and much disappointment. In the first place, it seems necessary I should remind "An Engineer" that by *no possibility* can he obtain a greater amount of power from compressed air than that which was expended in compressing it, whether this is effected by wind, water, or steam; and in practice, serious deductions will have to be made for friction, loss of heat, &c., &c. This fact appears to have been overlooked by him, from the following egregious blunder. He states, "Let it be proposed to compress air to 1000 lbs. pressure, which will give a medium working pressure of 500 lbs. per square inch; 1000 lbs. pressure per square inch is equal to 66 atmospheres—consequently, a column of air compressed into 66 times its density, *one* foot high, and one inch square at the base, will lift 500 lbs. 66 feet high." Now, here is the *hitch*—and on this miscalculation, the whole scheme rests; 66 atmospheres compressed into one, will certainly, at the same temperature, be about equal to 1000 lbs. per square inch—but it will no more raise 500 lbs. 66 feet high, than it is possible to produce perpetual motion with a redundancy of power to boot: this the following table will exhibit, which gives the respective pressures for each unit of expansion, provided the original temperature is maintained; otherwise, the pressures will be considerably reduced:—

Feet.	*Atmospheres.*	*Less pres. p. sq. in.*	*Feet.*	*Atmospheres.*	*Less pres. p. sq. in.*
1	66	1000	9	7·3	111
2	33	500	10	6·6	100
3	22	333·3	11	6·0	91
4	16·5	250	12	5·5	83·3
5	13·2	200	13	5·0	77
6	11·0	166·0	14	4·7	71·4
7	9·4	142·8	15	4·4	66·6
8	8·2	125	16	4.1	62·5

16)3380·5(211·2
32
18
16
20
16
45

Now, here we have only 211·2 lbs. lifted 16 — 1 = 15 ft. high, instead of 500 lbs. 66 ft. high, and you will also perceive that, at this limit, the pressure is reduced to about the proposed mean working pressure—viz., 60 lbs. per square inch—consequently, only the *first fourth* of the whole expansion is available. Mr. Parsey's "claim" appears to be, the introduction of a receiver, or self-acting regulator, for equalising the pressure of the air—that is, as applied to locomotives for delivering to the cylinders air, at a mean, or uniform, pressure of 60 lbs. per sqnare inch; in this respect, he merely substitutes air for steam, and, consequently, with cylinders of the same capacity, they must necessarily require, and will measure out, the same *bulk* of air as they would of steam, the velocity and power being the same. Now, how is his reservoir of 100 cubic feet capacity, charged at 60 atmospheres, to supply those cylinders for the distance, and load stated? This I pointed out in my former letter, and the disparity is sufficient to startle the most sanguine. Why, if he were to compress the air into a *liquid*, as the Americans are reported to have done (?), and the temperature maintained during expansion, such a reservoir would then be hardly equal to steam in *effect*, much more in *economy*. Again, another serious error is committed, in *completely wasting* the greater amount of the power, which compressed air possesses—namely, by the introduction of the receiver, or self-acting regulator—the very "claim" upon which the patent rests. It will be observed, that whatever may be the amount of compression in the reservoir, this excess of pressure over that contained in the self-acting receiver, is completely unemployed, otherwise than in supplying the receiver—so that, no matter what the original pressure may be, whether 60 or 60,000 lbs. per square inch, not one single pound of it is made available, for this regulator is intended to be so *very delicate* in its operation, that it actually prevents the cylinders receiving it at only a very reduced pressure—60 lbs. per square inch, for instance: hence, whatever power may have been expended in compressing the air above 60 lbs., is a complete loss.

"An Engineer" says—"A steam locomotive carries, I may say, its own stationary engine with it;—it has, therefore, not only to produce the power of propelling the machine and the loaded train, but that also which works itself:" wherein, I would ask, does the air locomotive differ from the above, except in the substituting of an air reservoir for a steam boiler? He seems to forget, that to have the same "bite" on the rail, the same weight is necessary—other circumstances being the same. I really must confess, that altogether this scheme is about one of the most crude and unphilosophical that I have seen proposed for many a day, and in this age of popular progression too, it almost amounts to a disgrace.

Norwich, March 23, 1846. F. HAM, C.E.

COLEMAN'S ARCHIMEDIAN RAILWAY PROPELLER. — Notwithstanding that partial notices have appeared in the *Mining Journal* of Coleman's screw propeller, as exhibited at the Royal Polytechnic Institution, a full description of its principles has not yet appeared; we give, therefore, the following from the specification:—Along, and between the line of rails, on inclined planes, are fixed a series of wooden rollers, between which the thread of an endless screw, attached to the locomotive engine, works; a cogged wheel is placed on the shaft of the driving-wheels, taking into another on the screw shaft, which, when not in gear, plays loosely thereon; the endless screw is suspended lengthwise underneath the locomotive, and firmly secured; the thread of the screw should never exceed an angle of 20°, but the patentee considers the most advantageous angle to be from 6° to 10°. When it is desired to communicate motion from the driving shaft to the endless screw, the cogged wheel is made fast to the driving shaft by means of a coupling box, operated upon by a lever in the usual manner, so as to place the power to make it tight or loose, completely at the will of the engineer.

TRANSPARENCY OF QUICKSILVER.—M. Melsens has found that quicksilver in minute globules is transparent, and transmits a blue light, slightly tinged with violet. These globules are formed when a fine stream of water is dropped on a mercury bath; the drops of water, in consequence of falling with some force, become covered with a thin pellicle of mercury, which presents the fact here stated. The result has been verified by Arago.

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

Society.	Address.	Day.	Hour.
Chemical	Society of Arts, Adelphi	Monday	8 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Civil Engineers	25, Great George-street	Tuesday	8 P.M.
Syro-Egyptian	71, Mortimer-st. Cav.-sq.	Tuesday	8 P.M.
Society of Arts	Adelphi	Wednesday	8 P.M.
Zoological	11, Hanover-square	Thursday	3 P.M.
Royal	Somerset-house	Thursday	8½ P.M.
Antiquaries	Somerset-house	Thursday	8 P.M.
Royal Institution	Albemarle-street	Friday	8 P.M.
Botanical	20, Bedford-st., Cov.-gar.	Friday	8 P.M.
Asiatic	14, Grafton-street	Saturday	2 P.M.
Westminster Medical	32, Sackville-street	Saturday	8 P.M.

GEOLOGICAL SOCIETY.

March 11.—Vice President (Sir R. I. Murchison, G.C.V) in the chair.

The following communications were read:—"A notice on the geology of part of the Beloochistan hills in Scinde," by Capt. Vickary; communicated through the Earl of Ellenborough by Sir C. Napier to Sir R. Murchison, and by him to the society. The district visited by the author extends for about 90 miles from west to east, and for about 50 miles from south to north. The general direction of the hill-ranges and valleys is nearly east and west, and the mean dip to the south. There are in all seven parallel ranges of mountains, increasing in height towards the Murray Hills—the most northern point visited. The first and second of these ranges were described as of inconsiderable elevation, and extending far towards the east; but the second of them is limited in the westerly direction, where it abuts against the third—the first limestone range. The dip is variable—small in the first range, but somewhat greater in the second, and the surface covered with boulders of nummulitic limestone from the north. Beneath the sandstone is a bed of foliated gypsum, from which salt springs appear. The nummulitic limestone, which next succeeds, is variable in its character and appearance, and contains a good number of fossils, but chiefly abounds in nummulites. There are four ranges of this rock, the highest of which is the Murray range. Deep transverse narrow clefts are observable in this limestone, and the author attributes them to subterraneous disturbances—since, although many of them now serve for the drainage of the country, they have manifestly not been formed by the erosive action of running water. This limestone at first dips about 20° south, but at the pass leading to the Deyrah Valley is disturbed; there is a great fault, and afterwards the rock is horizontal, until at length it dips towards the north. The fault extends east and west for many miles. Towards the north, the limestone becomes covered up by low sandstone hills, containing imbedded in them vast quantities of fossil bones and wood. The bones are those of crocodiles, accompanied by many referrible to the larger pachyderms. The nummulitic limestone again appears to the north, and is covered by a conglomerate or mass of boulders; and still further to the north, a number of small conical hills were observed, considered by the author to be of the nature of solfataras, emitting gaseous vapours. The nummulitic limestone, dipping away at a high angle to the south (45° to 60°), and at an elevation of 3000 feet above the sea, then once more appears, and, forming a mural barrier, continues for some distance, and is traceable for 70 miles from east to west. The author considers that the Deyrah Valley has been formed by subsidence, being on the line of a synclinal axis. The Murray hills are composed of nummulitic limestone; the stratification is nearly horizontal, and the range presents a precipitous escarpment to the southward.

A letter was read from Mr. Tagart, on the subject of certain supposed impressions of the feet of birds or reptiles observed in the Hastings sand, near Hastings, a specimen of which was presented to the society.

INSTITUTION OF CIVIL ENGINEERS.

March 24.—The President (Sir John Rennie), in the chair.

The paper read was by Mr. W. Parkes, Assoc. Inst. C.E., describing the "Estuary of the River Severn." After giving a brief account of the Severn above Gloucester, the paper proceeded to describe the character of the river at Longney Point, about 10 miles below Gloucester, where it becomes a tidal estuary, and where the most important circumstance to be taken into consideration as regards navigation is the rise of the tide. Below Longney the river becomes broad and shallow, and at low water presents an extensive series of shoals composed of mud and sand. The stream there is rapid, and the general fall of the surface is much increased. This lower portion of the Severn forms a great natural weir, which the shipping avoid by taking the Berkeley Ship Canal. Viewed in reference to its tides, that portion of the river might be considered as part of the Bristol Channel, for it is from the funnel-shaped form of that arm of the sea that it derives its facilities for navigation; in consequence of this form, the water running up is, as it were, choked by the downward current, and is raised above its sea-level; thus the lift of a high tide at Kingroad is 47 ft.; at the Old Passage it is 45 ft., at Chepstow 37 ft. 10 in., and at Beachley 40 ft. 6 in. At this latter point is situated the Old or Aust passage, on the main road from Bristol to Wales; the channel for navigation, and the main set of the tide is close to the north, or Beachley shore. The flood-tide flows at about 6½ miles an hour, and lasts four hours and a half; the ebb seven hours and a half. Small vessels are enabled to pass up at one hour and a half after flood-tide commences; larger vessels soon after half-flood, and reach Sharpness Point, the entrance of the Gloucester and Berkeley Canal, before high water. Above Sharpness Point, the river at low water presents an immense extent of sandy and muddy shoals for five miles. Here is first observed the curious phenomenon called the "bore." The impetuosity with which the two currents meet, and the shallowness of the low water channel, cause an almost verticle rise of two or three, and sometimes five feet, extending across the river, and varying its velocity as it passes over deep or shallow water. The paper then proceeded to notice the capabilities of the lower part of the Severn for improvements, and stated that one of the improvements of which it was susceptible was cutting a canal across the neck of land, from Framilode to Hock Crib, which would much facilitate the downward trade, by effecting a saving of two tides, to vessels sailing in that direction. Any general scheme of improvement was scarcely practicable; as, if the natural impediments in the lower part of the river were removed, the effect might be to nearly drain the upper portion. Still, since local alterations might be advantageously made, and the navigation would be facilitated, the author seized the opportunity of suggesting the advantages of having one standard height, as an uniform datum line all round the coasts of Great Britain, to which standard all levels should refer. In the discussion which ensued, the merits of the paper and the importance of the subject appeared to be generally admitted; and the good example given by the author, in communicating to the institution the observations, made during the course of his survey of a portion of the river for Mr. Walker, was particularly eulogised.

SOCIETY OF ARTS.

March 25.—George Moore, Esq. F.R.S., Vice-President, in the chair.

The first paper read was by the Rev. Dr. Thompson, on the "Earthquakes of Peru and Chili. In Lima, and all along the coast of Peru, observes Dr. T., earthquakes are very frequent. At times there are as many as two, three, or four, in a month—or as many, it may be, in one day. They are of two descriptions, and are called by the Spaniards the "temblor" and "terremoto." The temblor is a trembling, shaking, or quaking, of the earth; and somewhat resembles the effect produced upon the ground by a heavy carriage passing over it, but is at times very much beyond the greatest of such movements—the more violent the shaking the more rapid the motion produced. The first earthquake which the author of the paper experienced, after his arrival in Peru, was of this description, and occurred about three o'clock in the morning. The same produce he describes as being a fearful, and a most unnatural one. The loudest thunder might be considered as music compared with it. It seemed as if the heavy car of destruction was hastening to the place with an augmenting rapidity and fearfulness; but, though severe, this shock was not one of the worst of its class. This description of earthquake does occasionally crack the walls of houses, but they are never so severe as to throw them down. The motion of the earth in the temblor is caused, Dr. Thomson considers, by the obstructed passage of the electrical fluid, or from the reaction of the volcanic avalanche. The second description of earthquake is very different, and may be said to be always dangerous. The motion in the case of the terremoto is that of a violent upheaving of the earth; the convulsion is sometimes in a horizontal, and at other times in a vertical, direction; buildings are thrown down by the excessive agitation of the solid ground, and often so suddenly does this take place, that there is not time for the inhabitants to escape from the falling houses—at other times, there is a sort of warning given by the slight shock preceding the more destructive one. At other times, when the terremoto occurs, there are violent recedings of the sea along the coast, or fissures are opened in the ground, and massive rocks fall down from the sides of the mountains.

The paper then proceeded to describe the peculiarities of the mountains of North and South America, and concluded with an account of the most celebrated earthquakes that have occurred in those and other countries of America.

The second communication read was on an improved safety lamp for miners, by Dr. Clanny. The improvement consists in preventing currents of air coming in contact with the flame, by means of a glass, or other transparent substance, being substituted for the wire gauze at the lower part of the lamp, it having been found is also less liable to be blown out than the Davy lamp. Dr. Reid pointed out to the meeting the many and great advantages which it possesses over the lamps usually used. [This lamp was described in the *Mining Journal*, November 11, 1843, and the subject is fully alluded to in another column of this day's Journal.]

Some most elaborate specimens of electrotyping, by Mr. Colchester, were exhibited, as a challenge to the society to produce any thing equal to them in art. They were, indeed, beatiful, and excited wonder and admiration.

Bencort's Patent Saddle.—The patent-right of this ingenious invention, for Great Britain and the colonies, was sold, on Saturday last, at the Auction Mart, for 1400 guineas.

THE SOCIETY
FOR THE ENCOURAGEMENT OF
ARTS, MANUFACTURES, AND COMMERCE.

President,
HIS ROYAL HIGHNESS PRINCE ALBERT, D.C.L. F.R.S. &c.

LIST OF SPECIAL PREMIUMS: Session 92nd, 1846.

Under the New Rules and Regulations, which have been adopted by the Society during the present Session, for the renovation of the working constitution of the Society and the more efficient promotion of its objects, the Council have recommended, and the Society has adopted, the following list of Premiums, approved by the Special Committees of the different Sections of the Society, and they are now offered for public competition:—

I.

In the SECTIONS of AGRICULTURE and CHEMISTRY.

A PRIZE OF ONE HUNDRED GUINEAS,
For the Invention of a mixture of materials for a wholesome, nutritious, and palatable Bread, to be sold at a low price and used as an economical substitute for wheaten bread, biscuit, or potatoes. The materials suggested are sago, rye, wheat, maize, barley, beans, peas, oats, rice, beet-root, parsnips, &c. To be given in on or before the 15th of April, 1846.

II.

In the SECTION of FINE ARTS.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the Model of an Earthenware Jug, in one colour, to contain a Quart, with a Cover.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the Model of an Earthenware Mug, in one colour, to contain a Pint, without a Cover.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the Design or Model of the Cover of a Bible, 8½ inches by 12, to be executed in relief, in raised leather or in wood, either by the new process of burning or by the carving machine.

A PRIZE OF FIFTEEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For a Water-Colour Drawing, 8½ inches by 12 inches, of a Holy Family, suitable for engraving in wood, and specially prepared for printing in colours by wood blocks;—the object being to produce, at a cheap rate, a good picture, which may find its way into humble dwellings.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For a small Geometrical Pattern for a cheap Kidderminster Carpet and Stamped Drugget.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the cheapest and most beautiful pattern of Mosaic or Tile Flooring, one yard square.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For a Design of the most convenient, elegant, and cheap Washing-stand, Basin, and Ewer.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the Model of a Tea Urn of a small size.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For Models of a plain and cheap Earthenware Tea Service, in one colour, consisting of Tea-pot, Basin, Milk-jug, Cup and Saucer, and Plate.

III.

In the SECTION of MECHANICS and MECHANICAL ARTS.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For a simple and good method of applying Steam Power, directly, to propelling Vessels by the Screw.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For an improved Meter, applicable to measuring the quantity or volume of liquids passing through pipes under pressure on both sides.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For an improved Landing Pier, for embarking and landing Passengers, &c. by Steam-boats on Tidal Rivers.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For a portable and compact Machine for Raising and Lowering Heavy Articles from Carts while standing on the streets.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For a Horse Shoe, adapted to the several kinds of pavement now in use.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For an Improved Method of Preventing the Emission of Noxious Vapours from the Gratings of Sewers; which shall permit a free passage of the sewerage, and provide against bursting the drains.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For effective Ventilation of Ordinary Rooms, without cold currents or complex apparatus.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For a method of providing against injury and accident produced by the Noxious Vapours of Fusees and Explosions in Mining and Tunnelling, by means of improved ventilating apparatus or otherwise.

A PRIZE OF TEN GUINEAS, AND THE SOCIETY'S MEDAL,
For a Mechanical Contrivance for "Coal Whipping," to supersede the necessity of men nearly naked destroying their health and shortening their lives by hoisting coals from vessels on the river.

IV.

In the SECTION of MANUFACTURES.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the best application of Glass to the construction of Water-pipes, Tiles, and Drains.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the invention and application of a Cheaper kind of Glass than any now in use.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the best Machine for Cutting Wood into given forms.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the best Imitation of Ivory, in Plaster Composition, for Models and Sculpture.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the most elegant Design for a Stamped Table-cover in Woollen Materials.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For a method of Printing in Distemper by Blocks, so as to "keep register" more perfectly, and produce finer specimens of art in Paper Hangings than by the ordinary methods.

V.

In the SECTION of COLONIES and TRADE.

THE SOCIETY'S GOLD MEDAL,
For the best applications of Machinery, as a substitute for manual labour, in the various processes of Cultivation and Manufacture of Sugar, Cotton, and Coffee in our West India Colonies and the Mauritius.

THE GOLD ISIS MEDAL,
For the invention or importation of any Material, the produce of our Colonies, as a substitute for Hemp or Flax.

The object to be attained by these Prizes is generally sufficiently obvious, the encouragement of ingenuity and talent by publicity and distinction, the direction of invention to the most useful purposes, and the wider diffusion of taste and knowledge in objects of Arts and improved Manufactures is the object generally of the exertions of the Society.

The Prize for the mixture of ingredients for a wholesome and nutritious bread is the suggestion of a benevolent individual, who has contributed largely to the Prize Fund of the Society. It is peculiarly applicable to the present wants of the people, when the coarser kinds of grain and other food are required to be used for the supply of deficiencies in the usual crops; and it is believed that an article much more nutritious than potatoes, and equally palatable, may be obtained by a mixture of wholesome but cheap materials at a price less than half that of ordinary bread.

The Prizes in the Fine Arts are intended to promote the diffusion of a love for the symmetrical and the beautiful, by supplying in cheap materials, of elegant forms, objects suited to the familiar uses of every-day life. It is required, therefore, of competitors, that the forms chosen be distinguished by simplicity in their beauty, and by facility of execution in cheap materials, so as to be sold at low prices for general use. The Designs rewarded to become the property of the Society. The name of the contributor should be enclosed in a sealed envelope, with a motto or device on the outside. The objects of the remaining Prizes require no explanation.

NOTICE.

Candidates are requested to observe, that if the means by which any of the proposed objects are effected should be found to occasion an increase of expenditure or labour unsuited to general purposes, the Society will not consider themselves bound to give the offered reward. They expressly reserve the power, in all cases, of giving such part only of any premium as the performance shall be adjudged to deserve, or of withholding the whole. The candidates, however, are assured that the Society will judge liberally of their claims.

All Communications, Drawings, and Models designed for competition must be delivered to the Secretary of the Society of Arts, at the Society's Rooms, John Street, Adelphi, postage and carriage free, on or before the 15th of May, 1846.

EXTRAORDINARY CONTRIBUTIONS.

The following Extraordinary Contributions have been generously offered to the Council for the promotion of the objects of the Society under the New Rules and Regulations, for furthering the increased usefulness of the Society, for extending the lists of Premiums, for assisting to obtain a Charter, and for the other objects named in the Address of the Council, recently circulated among the Members.

TO THE SPECIAL PRIZE FUND.		
A. B.	£150 0 0	
C. D.	50 0 0	
		£200 0 0
GENERAL DONATIONS.		
Thomas Lewes	£25 0 0	
John Pepys	10 10 0	
		£35 10 0
LOAN FUND OF £1000.		
T. Webster	£50 0 0	
W. F. Cooke	50 0 0	
F. Whishaw	50 0 0	
E. Speer	50 0 0	
J. S. Russell	50 0 0	
G. T. Kemp	50 0 0	
Sir I. L. Goldsmid, Bart.	50 0 0	
R. Stephenson	50 0 0	
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The Supplementary List will be published at an early date.

Steam Communication to the Brazils.—To-day, at Liverpool, a new iron steamer, 600 tons burthen, is to be launched from the iron shipbuilding-yard of Messrs. James Hodgson and Co. She is the first of a new line of steamers intended to ply between that port and the Brazils. She will be propelled by the screw, with engines of 100 horse-power.

Extraordinary Launch.—An iron steamer, belonging to the City of Dublin Co., is intended to be launched to-day from Mr. Peter Cato's building-yard, south-west corner on the Brunswick dock. Her launch-way will extend upwards of 400 feet, the whole of which distance the vessel will have to run before she reaches the water's edge.—*Liverpool Mercury*, of last-night.

Value of Smoke.—A striking instance of economic talent came to our knowledge in the district of Alston Moor. From the smelting earths of one "house," an arched tunnel conducts the smoke to an outlet at a distance from the works, in a waste spot, where no one can complain of it. The gathering matter or "fume" resulting from the passage of the smoke is annually submitted to a process, by which at that time it yielded enough to pay for the construction of a chimney. A similar tunnel chimney three miles in length was erecting at Allendale. Its fume will yield thousands of pounds sterling per annum. Truly here it may be said that smoke does not end in smoke.

Extraordinary Incident.—On the evening of the 13th inst. a very fine black cat having strayed into a field in the immediate neighbourhood of the Brymbo Iron Works, where she was observed patiently watching her prey, when to her astonishment a terrier-dog made his appearance. Poor Grimalkin, well knowing the awkward customer she had to deal with, soon vacated her position, and made a precipitate retreat; but being so hard pressed, she took to the coke ovens, which were close at hand, and ran over about half a dozen, although they were at the same time red hot; the terrier undaunted soon followed the footsteps of the feline race. Poor puss by this time being so confused in consequence of the glare and the unexpected heat of the ovens, together with so determined a pursuit by her deadly foe, directed her course to a coal pit; unfortunately it was uncovered, and awful to relate the poor creature was precipitated to the bottom, a depth of 243 feet. As the colliers were lowered the next day they were welcomed by the parring of the cat, and, strange to say, she is as well as ever—having received no injury.—*Chester Chronicle.*

A Case of a Shattered Constitution Cured by Holloway's Pills.—Miss Glover, aged 24, daughter of Colonel Glover, 15, Broadway, New York, had an enlargement of the liver, a constant palpitation of the heart; besides being dropsical, was never free from a cough, accompanied with much expectoration. She was so bad as not to be able to leave her chamber. The first advice in the country had been obtained for her, but to no purpose, as she daily got worse, and kept her bed altogether. In this hopeless state, the colonel sent to Toronto for 20 dollars' worth of Holloway's pills, which had the effect of completely restoring the young lady to health in about nine weeks.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London.

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THE COAL MINE MONOPOLY OF THE LOIRE.

[FROM OUR PARIS CORRESPONDENT.]

Circumstances prevented the question as to the union of the coal mine companies of the basin of the Loire from being brought before the Chamber of Deputies, on Saturday last, as was intended. It was, however, introduced yesterday—and, after occupying the greatest part of the day, was postponed until to-day. From the number of deputies who appear disposed to take part in the discussion, it is not impossible that a further adjournment may take place this evening; but that it will lead to any other result, than was obtained by yesterday's debate, is not very probable.

M. Lanyer, the deputy for St. Etienne, brought the subject forward. He said, that the importance of the question could not be exaggerated, being nothing less than whether the liberty of competition should be replaced by monopoly. He said, it would be dangerous that the mines of the basin of the Loire should be in the hands of one company, seeing that they supply Lyons, St. Etienne, all the departments in the valley of the Rhone to Avignon, the valley of the Soane, the interests connected with the canal from the Rhone to the Rhine, from St. Jean de Losne to Mulhouse, the industrial establishments of Alsace, the furnaces of Franche Comte of Bourgogne, all the valley of the Loire to beyond Orleans, the interests of La Nievre, and even, notwithstanding the expense of conveyance, part of the basin of the Seine. Since the increase in the number of concessions, the supply of coal had risen from 3,000,000 or 4,000,000 hectolitres to 16,000,000; and, with that supply, the operations of the steel, iron, glass, and other establishments had increased also. In 1838 expectations had been entertained, that the great number of railways projected would cause an enormous demand for coal; but those expectations being disappointed, many of the companies and proprietors of mines became seriously embarrassed. Then two associations were formed, under the name of *Compagnies Charbonnières*—their object being the regularisation and elevation of prices, and the means of attaining that object, the fixing proportionally of the production of each mine, with the price of sale in common, and a division of profits, according to certain rules. After going on amicably for a time, they began to dispute—and with the view of injuring each other, or of benefitting themselves, obtained possession of several other mines. One company, with its group of mines, took the name of *Compagnie Generale de Mines de la Loire*, and, to its mines in the basin of Rive de Gier, added the important mine of Le Treuil, although it was at a distance of 25 kil. from its other mines, and in the basin of St. Etienne. Another company took the name of *Mines Reunies de St. Etienne*. A third also sprang up, called the *Compagnie des Houillères de St. Etienne*. The *Mines Reunies* took an important mine, the Gagne Petit, in the region of its opponents, and the Houillères did the same, by obtaining the mine of Grangetté et Culase. The *Mines Reunies* then took the Givors Canal on lease for 80 years, which gave it a great advantage over the other two, as it could double the price of transport thereon, and even interdict conveyance altogether from Rive de Gier towards the Rhone. Thereupon the *Compagnie Generale* effected an amalgamation with the *Compagnie des Houillères*. As a set off to this, the *Mines Reunies* obtained a promise of the lease of the St. Etienne and Lyons Railway for 90 years. Alarmed at so formidable a monopoly of transport in the hands of its opponents, the *Compagnie Generale* proposed an amalgamation, which the *Mines Reunies* immediately accepted, and the two companies became one, under the name of *Compagnie des Mines de la Loire*. It should be stated, that immediately on this junction, the agreement to take the lease of the St. Etienne Railway, which, it appears, was only conditional, was broken off. In bringing about this gigantic fusion, money appears to have been no object. For instance: two concessions of mines, granted in 1838, had a capital of 5,200,000 fr.; after sustaining great losses, the affairs were liquidated at 1,500,000 fr.; yet the *Mines Reunies* gave not less than 5,200,000 fr. for the concessions. The same company gave 170,000 fr., with an annual rent of 375,000 fr., for the concession of a mine purchased in 1844 for 750,000 fr. The general association is anxious to obtain the concession of Firming, the capital of which is represented by 900,000 shares, of 1000 fr. each; it has given to several shareholders 5000 fr. in money, and two shares in its own company for each individual share, and it will give the same terms to all the Firming shareholders, if they will all sell. It was clear, said the deputy from St. Etienne, that to make good these enormous and extravagant outlays, the company would be obliged to increase the price of its products, notwithstanding all its fair promises. By no other means could it meet 5 per cent. interest on from 70,000,000 fr. to 80,000,000 fr. pay from 300,000 fr. to 500,000 fr. for the lease of the Canal of Givors, which, for 15 years, has been carried on at a loss, and pay the interest on, and capital of 5,000,000 or 6,000,000 fr. of borrowed money. An addition of 5 centimes per hectolitre on 20,000,000 hectolitres, would give a million additional profit to the company; 10 centimes would give two millions; 20 centimes four millions; and the directors, with the best intentions in the world, could not resist the demands of the shareholders for such increase. The hon. member went on to read extracts from the declarations of competent and official persons, to the effect that the company, to remunerate itself, *must* increase the price of coal; and among them were those of the Council General of Manufactures, to the effect that, in consequence of the amalgamation of the companies, prices of coal and coke *have* increased on some qualities as much as 50 to 80 per cent., and on coal for gas 70 per cent. He then briefly glanced at the law, relative to mines and amalgamations, and concluded by asking the Minister of Public Works—1. If the Government intended to interfere by efficacious means?—2. Would it maintain all the concessions in activity? Would it oblige each of them to have a special direction, a particular centre of sale, a separate and distinct administration, comformably to the dispositions of the law of 21st April, 1810?—3. Did the Government think that the existing laws gave it the right to interdict the emission of shares in mines without previous authorisation by a civil society? Would it summon the coal company of the Loire to dissolve itself immediately?—4. If the association be maintained, if the natural competition of the mines among themselves be destroyed, what guarantee would the Minister of Public Works give to the centre of France against an excessive price of coal, and against the lowering of the wages of the workmen?—5. In case the Minister should find the existing laws insufficient, would he propose a new law, so as not to be disarmed against the dangers of monopoly?

M. Dumon's speech, in reply, was very long. The Minister commenced by an elaborate exposition of the existing laws on the subject of mines, with which I will not weary you. The sum and substance of it seemed to be, that the reunion of several mines in the hands of one individual, or company, is not forbidden; but the Government authorities can insist upon every mine being always fully worked. From the mere circumstance of being compelled continually to work the mines, it was clear, he said, that the lessees could not raise the price of coal excessively. He regretted that the mines in the basin of the Loire had been divided into so many concessions. There were not less than 60 concessions; some of which were of immense extent—that of Firming, for instance, is more than 5000 hectares—and others were excessively small, and made still smaller by subdivision. This subdivision was most disastrous. Mines were only worked at the surface, the rules of art were entirely neglected, often the mineral wealth was destroyed by subterranean inundations, and the evil altogether was immense. It led, in 1838, to the passing of a law, to compel the lessees of mines to unite among themselves, for taking measures to prevent disasters, which, though at first affecting only a few, finished by ruining all; the same law regulated the power of withdrawing concessions. [It may perhaps be useful to remark here, that, by the law of France, all mines are the property of the State, and are leased out by it]. The Minister went on to say, that he regretted the amalgamation of the companies that had been effected. The working of all the mines in different basins was by no means required to be under one direction, and he thought that the company itself would find it an inconvenience. With respect to the first question he might observe, that on entering office, the subject of the union of mining companies had attracted his attention. He had required the Council of Mines of his department to give its opinion thereon, and that opinion had been, and would be, his rule of conduct. It was to the effect, that several concessions might be united in the same hands; but if the working of any concession was suspended partially or wholly, in such a manner as to cause a deficiency of supply, or inconvenience to the public, the Government would interfere. The Government would also interfere in case the persons directing the working should not be capable, or if they should attempt unjustly to increase the price of coal, or to lower the wages of the workmen. As to the recent amalgamation of the companies, and their absorption of the Givors Canal and the St. Etienne Railway, he had informed the directors, that the Government did not approve of it. The agreement as to the railway had been broken off, and the Government has not sanctioned that with respect to the canal. He had sent one of the most eminent engineers of mines to the spot, to examine into, and to report upon, the amalgamation of the companies. The conclusions of his report were—that in itself the amalgamation was not illegal; that according to its management the company might do great good, or great harm; that it should be compelled to constitute itself in *Société Anonyme*; that its board of direction should be at Paris; that it should be superintended by a king's commissioner; that the price of coals should not be increased above that of November, 1845, unless after a *decision motivée* (a decision stating the motives) of the board of directors; that the wages of the workmen should not be reduced below what they were in November, 1845, except on a like decision; that it should make in its mines all the researches the Government could require; that it should extract every month as much coal as was extracted in November, 1845, and even require a tenth more each year; that it should have constantly on the place of sale the quantity required to be extracted from each mine in a month; that the quantity remaining unsold in any month may be counted as extracted in the following month—but only when it shall have been ascertained that the want of sale was not occasioned by increase of price; that a register of the demands for coal be kept at each magazine, and satisfied according to the order in which the demands shall be made; that the price of coal to consumers in the department can never surpass the average price of coal sent out of the department; and finally, that the government shall reserve to itself the right to withdraw the authorisation of the statutes, in case of the price of coal being excessively *(abusivement)* increased in such manner as to render impossible the exercise of any branch of industry now followed in the department of the Loire. Such were the conclusions of the report of an eminent engineer, but they had not yet been decided upon by the Council of Mines, or the Government. The hon. member had asked, if the Government would summon the company to dissolve itself? It had no right to do so, for the company was perfectly legal. But he had a right to demand that each concession included in the company's amalgamation, should be fully worked, in the same way as if it were in the hands of the original lessee. If each mine were not fully worked in such a manner as to meet the public requirements for coal, the concession could be withdrawn. Could there be a more effectual protection against monopoly? For himself, certainly he did not think it. And, if the company should venture to increase excessively the price of coals, or to lower excessively the wages of the workmen, was there not the Penal Code to punish them? The Government would not propose a new law, but its course was clear—in case of abuse on the part of the company to withdraw the concession, and to invoke the penalties of the Penal Code.

After this speech some other Deputies spoke, and the discussion, as I have said, has been continued to-day, and is proceeding at the moment at which I post this letter. All the newspapers of this morning dwell upon the matter, and, generally speaking, they declare against the company. There is also a strong feeling against it in the Chamber of Deputies, and particularly at Lyons and St. Etienne, and in the departments of the Loire. But, for my part, I cannot see why it should be attacked. The working of many of the mines, before they fell into the hands of the company, was so neglected, or so badly conducted, as to be a public nuisance; under the company each mine will be fully worked—there will be a constant supply of coal, and constant work for the miners. And, as the Government will take effectual means to prevent the company making an inconvenient exercise of its power, what more can be required? Where is the harm of a monopoly, when the monopoly is rendered harmless?—*Paris, March* 25.

New Communication between the Pacific and Europe, via the Isthmus of Panama.—We have alluded, in former numbers of this Journal, to the benefits the mining interest of South America and the shareholders in this country, would derive by an established line of steam-packets on the western coast of South America, in conjunction with the Royal West India Mail Steam-Packet Company in the Atlantic side, for a speedy communication between the New and the Old World. We are glad to find, that her Majesty's Government has entered into a contract with the Pacific Steam Navigation Company, for the conveyance of mails once in every month each way between Panama, Callao, Valparaiso, and other intermediate ports, and an agent of this department at Panama has been instructed to forward by the steam-vessel to be provided under this contract, all letters and newspapers addressed to places in the western coast of South America, and forwarded to him in the closed mails, which are made up in London on the 17th of every month. It is expected that the first contract packet will be in readiness to leave Panama, on or about the 23d proximo, with the correspondence posted in this country, up to the 17th instant. The packets will call at the undermentioned ports:—States of New Granada, Buenaventura; do. Ecuador, Guaquil; do. Peru, Payta, Lambayeque, Huanchaco, Santa Huacho, Callao, Pisco, Islay, Arico, and Guique; do. Bolivia, Cobija; and in the state of Chili, Copiapo, Huasco, Coquimbo, and Valparaiso—the great mining districts. Letters not exceeding half an ounce, are to be charged 2s. postage; and newspapers addressed to the states of New Granada, Ecuador, and Peru, will be forwarded free from postage, but those addressed Chili will be charged 4d. each. Mr. Perry, her Britannic Majesty's consul at Panama, has (with the consent of her Majesty's Government) been appointed agent for the Royal West India Mail Steam-Packet Company at that port, for the purpose of receiving specie, bullion, jewellery, &c., and provide for their transmission (the usual risks excepted) to the Bank of England. The charge established upon freights of specie and bullion, which includes the expenses of transit across the isthmus, and all other charges from delivery to the company's agent at Panama, is 1¾ per cent.; upon pearls, emeralds, and all other precious stones unset (being exempt from duty), 2¼ per cent. on their value, also deliverable at the bank of England; and upon jewellery, subject to duty, 2½ per cent. on its value, deliverable at Southampton. The steamships of the Royal Mail Steam Company leave Southampton, on the 17th of every month, and proceed (*via* Jamaica) to Chaqres, where they arrive on the 20th or 21st of the following month—the passage occupying about 34 days. At Chaqaes they stop about half a day, to land passengers, proceeding overland to Panama, where the steamers of the Pacific Steam-Packet Company will embark them for conveyance to the different ports, southward as far as Valparaiso. On her return from Chaqres to Southampton, the packet will start on the 25th or 26th of each month, with the mails and passengers that have arrived from the Pacific, and proceed (*via* Jamaica, Havana, and Bermuda) to Southampton, where she is due on the 7th of each month—the passage occupying about 40 days. The packet which leaves Chaqres on the 25th or 26th of each month, with passengers from the Pacific, will reach Havannah on the 7th or 8th of the following month, after a passage of 12 days,—from whence an American steamer leaves monthly for New Orleans; besides which there are monthly sailing packets to New York, and other ports of the United States. The benefits of steam navigation are daily more and more developing themselves—not only conferring the greatest facilities to mining, but also to commercial enterprise in general. We have now splendid steamers crossing the wide Atlantic from Liverpool to New York, and from Southampton to all the West India islands and South America, the coast of Spain and Portugal, the Mediterranean, Egypt, and Constantinople, and Suez to the different ports of India. We are glad to find, for the benefit of the mining interest in the Brazils, that a regular line of steam-packets is about to be established between Liverpool and that part of the globe, which will be the means of creating a rapid intercourse with Buenos Ayres, Brazils, and this country—a desideratum which has long been wanting, as extensive mining operations and speculation are now going on in the latter country by English enterprise, under the sanction of the Government of his Majesty the Emperor Don Pedro the Second.

Railway Exchanges.—Whenever railways penetrate purely agricultural districts, they effect a complete revolution in prices, and very soon establish a regular course of exchange between the mining and manufacturing and the agricultural produce. Wherever coal is dear, grain and meat is cheap, for want of markets. When the Bristol and Exeter Railway penetrated Devonshire, the demand for wood faggots almost ceased, the peasantry could buy coal cheaper, while the price of butter, poultry, &c., rose in Exeter market, for the railway opened to the farmers all the markets up to London. The consumption of vegetables in manufacturing towns is enormous. It is stated by Capt. Lawes, in his evidence before the Gauge Commission, that as much as 12 or 14 tons of cucumbers have arrived in Manchester in one day from the neighbourhood of Rugby; and if a complete communication be established by rail between Manchester, Rugby, and Oxford, it is anticipated that an immense interchange will take place of garden stuff and agricultural produce for coals. The effect of railways on the meat market may be judged by the fact, that, on one Saturday in August last, the Birmingham and London Railway brought up 550 oxen, 5571 sheep, 349 pigs, and 3 calves.—*Evidence on Gauge Question.*

Wood Paving.—An application is to be made, on the part of Mr. Stead, before the Judicial Committee of the Privy Council, on the 8d of April, for a prolongation of his wood-paving patent.

Mineral Resources of Algeria.—Mining operations in Algeria are not only attracting the attention of the Government, but that of private adventurers and speculators, as it is fully ascertained there are many valuable mines of rich ores, and every encouragement is being given by the Minister and the authoritics for the working of them. It has already been stated, in this Journal, the many obstacles which present themselves to mining enterprise in Algeria, from the want of coal beds, the scarcity of wood, and the small quantity of water which could be obtained as a propelling force, and that consequently, if the ores are to be treated in the country, they must import their coal from England, and their wood and charcoal from Spain and Portugal, as fuel of every description is not only dear but scarce in France, which cannot even meet her own consumption without importing annually a large quantity of coal from this country and Belgium. Several experienced mining engineers are now over in Algiers, not only exploring the country, and its mineral resources, but to try if it is not possible to sink Artesian wells that would produce a sufficiency of water for working the mines, and also would provide the troops and inhabitants with a constant fresh supply of this most requisite element for their preservation, as the water at present used has proved most injurious, causing many fatal disorders. The *Moniteur Industriel* has taken up the subject of the mineral riches of their new colony with some warmth, considering that, in a few years hence, France will be enabled to dispense with importing either coal, steel, iron, machinery, or any other article of commerce, from England, or other countries, as she will have sufficient resources to meet her demands. *Nous verrons!* M. Lepelletier, a clever civil engineer, who has been out in Algeria for some time, has given a very excellent description of its mineral resources, but at the same time laments the want of fuel and water, for operations on a large scale. Iron is found in the chain of mountains running along the coast, and their ramifications; in the plains, sea salt is the mineral which most abounds in Algeria, and covers extensive marshes. The iron ore consists chiefly of oxidated and spathose—in the first, iron is found in various degrees of oxidation, generally in a pure state, and often magnetic oxidated (or oligist) ore—some of which is equal to those of Sweden and Elba. The second state in which iron is found, is that of spathose ore (carbonated iron), and is employed in the manufacture of natural steel at Allevard (Isere), Germany, Styria, and Westphalia. It is in the veins of spathose iron, where copper, in different states, as sulphur (pyrite) and arsenio-antimony, with a little silver (grey copper), are found. The oxidated beds of iron are chiefly in the granite mountains of Edough and Fillfella, between Bona and Philippeville: it is in this region where is situated Cape Iron (Rashadid), and the fine magnetic rock of Ain Morkhra, called by the Arabs the "iron quarries." The mine in the environs of Milianah is often black hematite, yielding 50 to 60 per cent., and it was with the ore of this mine that Abd-el-Kader intended to have supplied the forges or furnaces he had erected during the peace concluded at Taffna. By the numerous cuttings, still rich in iron, it is very evident that the ores in the environs of Bona and Milianah had been worked by the Romans. The Kabyles, near Bougia, manufacture from the ores of Cape Forat, and Santa Cruz mountain, which commands the town of Oran, iron steel by the same process as the Catalans of Spain, from which metal they make their muskets and other arms. The veins of Mouzaia contain arsenio-antimony of copper, and a small portion of silver, which are now the great objects of working. In the mountains of Cape Tenes, the copper is sulphurated, and contains arsenic and antimony, but more silver than in the former. There are some veins of sulphurated lead in the districts of Djehel-Gueroaou, near Sidi-Bouais, and antimony slightly argentiferous. Sea salt is a mineral more abundant in the ridges of Tell, and the plains of Sahara, than iron in the mountains of the Atlas and Jurjura. It has been found in a rock state, as at Milah, where the bed is 20 to 30 feet in thickness, in flakes of 10 to 20 centimetres, under the gypsum and the black clay. The salt mines of Milah are worked subterraneously by the Kabyles, who supply the market of Constantine, but salt is more frequently found under water in springs, marshes, or saline lakes. The latter depend greatly on the heat of the season, which dries them up, when the salt becomes crystalised. There is also in Algeria lead and manganese. The lead is in a state of galena. The extensive mine of Bou Thaleb, near Setif, is worked by the Kabyles, as they make from this galena their balls. At Boudjareah, near Algiers, they have discovered a vein of argentiferous galena, which is expected to be very profitable. At Guelma and Calle, there are several beds of lead; and in the many villages of Kabylie, there are nitrous earths which are used after being washed as saltpetre, for the making of gunpowder. There is no doubt, therefore, that the Government will try to make the best they can of this colony,—as there are also some fine quarries of marble, and other useful stones for building.

Progress of Mining in France.—In consequence of the advance now making in railways, steam navigation, machinery of every description, the manufacture of gas, and other purposes, where coal and iron are called into requisition, a most astonishing impetus has been given to mining enterprise. The mining interest in France has always been jealous of the predominancy of our iron and coal in the French markets and ports, over that produced in their country. There are, certainly, numerous iron and coal mines in France, but the ore and the bitumen is of a very inferior quality, and can only be used for common purposes, and she is obliged to import largely of both from England, Belgium, Sweden, and Germany. During the present month several new companies have been formed for working the iron mines, building of furnaces and forges, and to extend, as much as possible, the opening of new coal-pits, the seams of which have lately been explored by various mining engineers. There are several experienced Englishmen engaged in this mining revolution now taking place, who have embarked largely in the speculation, which, no doubt, will ultimately prove highly lucrative; therefore, let not the ironmasters and coal proprietors of this country be dormant, and contend for high prices, as it is only cheapness that will have the ascendancy in the markets abroad. Iron pillars are now being generally adopted in France, in the building of houses, shops, and manufactories, of every description, as supporters, and cast-iron for shipbuilding—so that with this and the demand for railways, they cannot, by any possible means at present, provide a sufficient supply. These great operations will give employment to thousands, and will, no doubt, not only be a profitable speculation, but beneficial to the country at large, and put a check to the monopoly that now exists in mining affairs.

Further Aggrandisement of Russia.—It is well known that the ambitious autocrat, Nicholas of Russia, has long been intriguing to get a military footing in the Persian empire, which wish, it now appears, is likely to be accomplished. From a correspondent, we learn that a Persian ambassador has taken his departure for St. Petersburgh, in order to insure for the minor son of the Schah the Czar's protection against the usurpation of the throne by his uncles—a no very uncommon occurrence in the East. The mission is a very important one, as the conditions will cede to Russia the ports of Engela and Astrabad, on the south bank of the Caspian Sea, as permanent stations for her ships of war and commerce, and she will be able to establish her arsenals and magazines. She will also be enabled to erect, from Retsch and Astrabad to Teheran, in certain places, fortified caravanseras, for the protection of her commerce with Persia, garrisoned with regular troops. Finally, the Schah is to grant to a Russian company, for a certain rent, the working of the extensive and excellent coal mines of Masenderaz, discovered by Major Workobonikoff, in 1840. The Count de Medem had vainly solicited this concession. Russia will, therefore, thus acquire immense resources for the building of vessels, and for her steam navigation, which is making a most rapid progress. On her own side Russia is to give up her claim to certain sums, still due for the war indemnities, stipulated by the treaty of February, 1828. She guarantees the throne to the son of the Schah, and engages to support him by an armed force, if necessary. Persia is one of the richest mineral kingdoms in the East, abounding in coal, gold, and silver mines, iron, manganese (from which are made the celebrated Damascus steel blades), copper, and other ores, as well as many valuable minerals and precious stones, which have not hitherto been worked, or scarcely explored. This the Emperor of Russia is well aware of; but one of his over-bounding ambitious views is, that if he could once get possession of Persia, he then might destroy British influence in India, as it has been ascertained that many Russian officers have, for several years, been intriguing in our enemies' camp. The great commercial, as well as naval, prosperity of Great Britain has always caused the jealousy of the autocrat, not only as regards the Mediterranean, Turkey, Egypt, India, and China, but every part of the globe, and, if he *could*, he *would* destroy the power, industry, and commerce of this country.

London:—Printed and Published, weekly, by Henry Esquiros, at the Office, No. 26, FLEET-STREET, in the city of London, where all Communications and Advertisements are requested to be forwarded—addressed to "the Editor"—post-paid. [March 28, 1846.